YAMAHA

SYMPHONIC ENSEMBLE

SK50D

SERVICE MANUAL

445

'81.8 0.2K Printed in Japan

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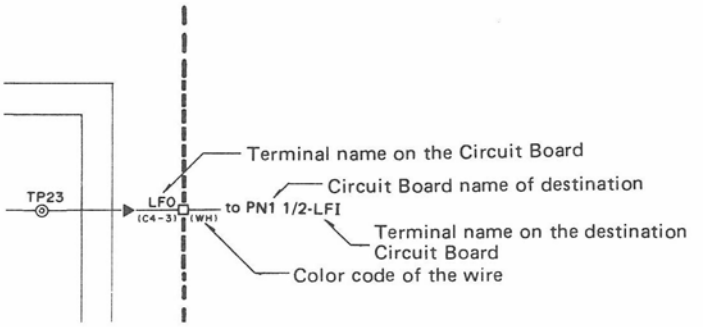
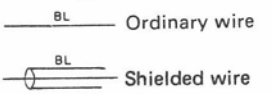
CODING GUIDE(活用の手引)

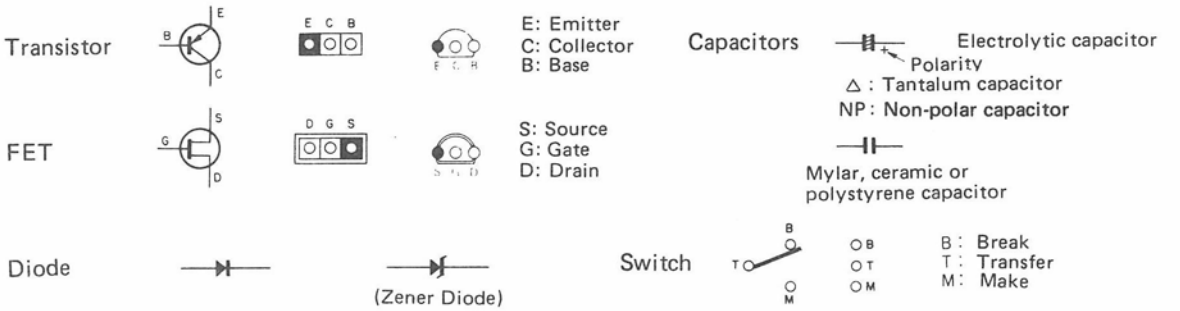
1 Wiring Notation



Note: Types of wire



2 Symbol Description



3 Abbreviations of Wire Color Codes

BLACK(クロ)……BL	BROWN(チャ)……BR	RED(アカ)……RE
ORANGE(タイ)……OR	YELLOW(キイ)……YE	GREEN(ミト)……GR
BLUE(アオ)……BE	VIOLET(ムラ)……VI	GRAY(ハイ)……GY
WHITE(シロ)……WH	GRASS GREEN(クサ)……GG	SKY BLUE(ソラ)……SB
PINK(モモ)……PK	TRANSPARENT(トウメイ)……TR	

4 Relation of Color Coding and Notes

C	C♯	D	D♯	E	F	F♯	G	G♯	A	A♯	B
BR	RE	OR	YE	GR	BE	VI	GY	WH	GG	SB	PK
(チャ)	(アカ)	(タイ)	(キイ)	(ミト)	(アオ)	(ムラ)	(ハイ)	(シロ)	(クサ)	(ソラ)	(モモ)

5 Logic Symbols

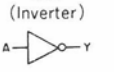
	MIL	YAMAHA
NOT (INVERTOR)	A — Y	A — Y
NOR	A, B — Y	A, B — + — Y
NAND	A, B — Y	A, B — • — Y

Exclusive OR (排他的論理和)

Truth Table

A	B	Y
L	L	L
H	L	H
L	H	H
H	H	L

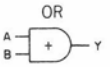
NOT (Inverter)



Truth Table

A	Y
L	H
H	L

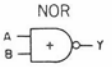
OR



Truth Table

A	B	Y
L	L	L
H	L	H
L	H	H
H	H	H

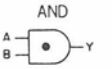
NOR



Truth Table

A	B	Y
L	L	H
H	L	L
L	H	L
H	H	L

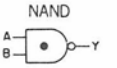
AND



Truth Table

A	B	Y
L	L	L
H	L	L
L	H	L
H	H	H

NAND



Truth Table

A	B	Y
L	L	H
H	L	H
L	H	H
H	H	L

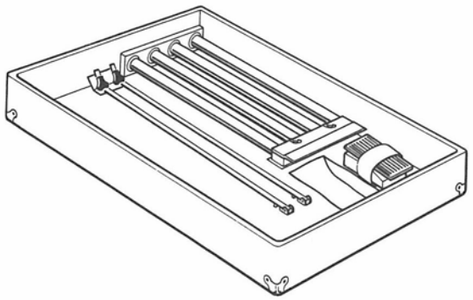
DISASSEMBLY PROCEDURE(分解手順)

STAND ASSEMBLY(組み立て)

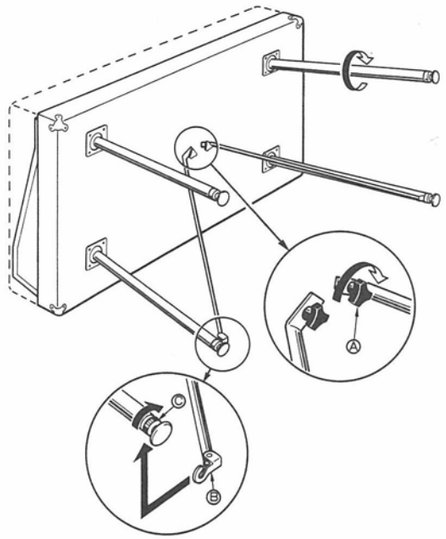
Four legs and two braces are stored in the upper section of the SK50D case. These are attached to the instrument in the following manner.

1. Remove the legs and braces from the upper section of the SK50D case, then securely close the case while assembling the stand.

2. Stand the instrument on the rear panel of the case and screw the legs into their sockets as shown in the illustration below.

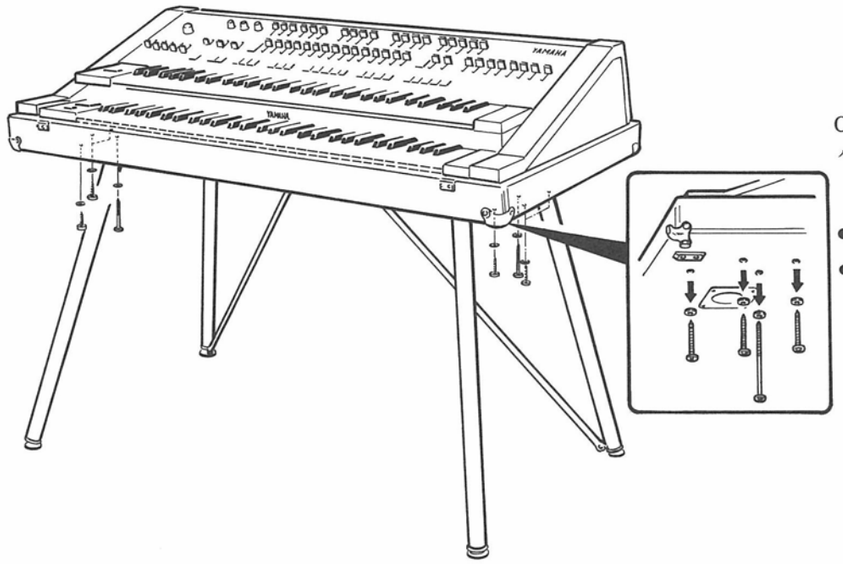


3. Attach the braces to the rear legs as shown below.
- Loosely attach the braces to the underside of the SK50D with the screws Ⓐ .
- Loosen the lock rings Ⓑ on the rear legs and insert the brace hooks Ⓒ between the legs and lock rings. Tighten the lock rings securely.
- Finally, securely tighten the screws Ⓐ .



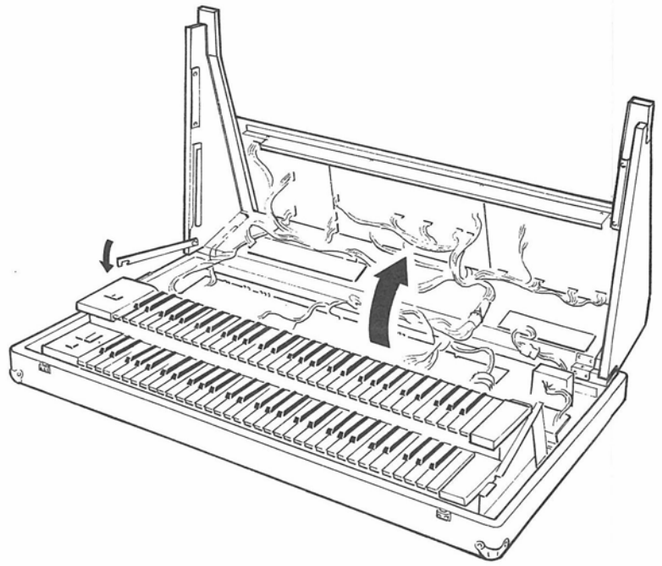
LIST

- Leg (4)
- Brace (2)
- Foot controller (FC-3A)
- Power cord

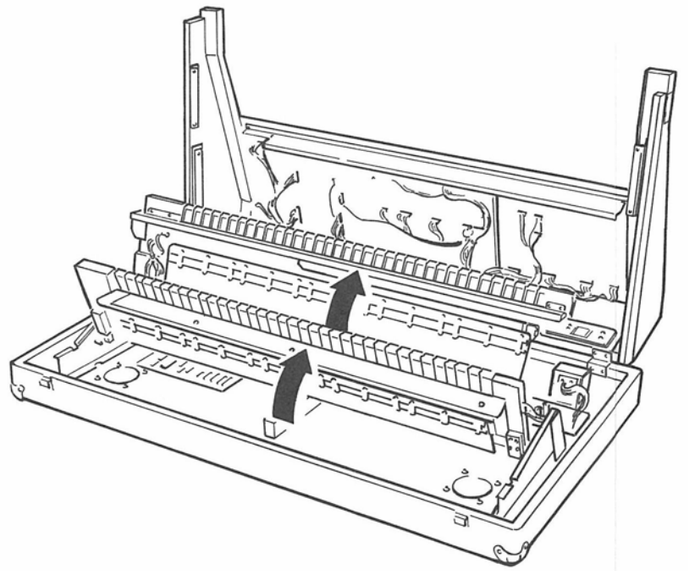


Opening the Consele Panel and Keyboard.
パネル及び鍵盤部の開閉

- Remove 8 screws from the bottom cover.
- 図のようにケース底側のネジ合計8本をはずします。



- Lift the panel as shown in the figure until it is fully opened.
- パネル部を図のように持ち上げ回転させて開きます。



- The keyboard can now be lifted as shown in the figure.
- パネルを上げた状態で鍵盤部を図のように回転させることができます。

SPECIFICATIONS(総合仕様)

KEYBOARD
- UPPER KEYBOARD . . 61 keys C_1 ～C_6 5 octaves
- LOWER KEYBOARD . . 61 keys C_1 ～C_6 5 octaves

OUTPUT section
- LINE OUT . . . . . ON, OFF; MIXED
  EXT TONECABINET output OFF
- Volume . . . . . MASTER VOLUME
  SPLIT volume:
  SOLO/UPPER ORGAN/LOWER ORGAN/STRING/POLY-SYNTH

PITCH section . . . . . TUNE: 438～450Hz
POLY-SYNTH DETUNE: $^{-20}_{+27}$ cents
SOLO TUNE: −500～+700 cents

SOLO SYNTHESIZER section (Single-note, High-note priority)
- MODE . . . . . NORMAL, BASS
  (to lower keyboard C_1 ～F_2# by MANUAL BASS)
- LFO . . . . . SPEED: 0.1～100Hz
- PORTAMENTO . . . . . 3 sec max. (C_3 ～C_6)
- GLIDE . . . . . 70msec. max.
- VCO block
- FEET . . . . . 4', 5-1/3', 8', 16', 32', 64'
- WAVE . . . . . ⅄→⊓, mixable
- PW . . . . . 50～85%,
  LFO, MANUAL, EG selectable
- VCF block
- CUT OFF FREQ . . . . . Variable range: 10 octaves
- RESONANCE . . . . . Q : 0.5～10
- MODULATION . . . . . 3 octaves/max.
- EG DEPTH . . . . . 0～10 octaves
- VCA block . . . . . HOLD, GATE, EG selectable
- EG (ENVELOPE GENERATOR)
- ATTACK TIME . . . . . 0.003～3 sec.
- DECAY TIME . . . . . 0.03～30 sec.
- SUSTAIN LEVEL . . . . 0～10
- RELEASE TIME . . . . . 0.03～30 sec.
- TOUCH
- VIBRATO . . . . . ±120 cents/8', A_3
- BRILLIANCE . . . . . +5 octaves/max.
- MODULATION . . . . . 6 octaves/max.

BASS section
- MANUAL BASS . . . . . OFF: Playable by BASS PEDAL
  ON: Playable lower keyboard C_1 ～F_2# and by BASS PEDAL
- SUSTAIN . . . . . 2 sec. max.
- BRILLIANCE . . . . . ±5dB/500Hz (Sine wave)
- Tone Lever . . . . . 16', 8', ATTACK 8'

VIBRATO section (POLY-SYNTH & STRING)
- DELAY . . . . . 0～3.2 sec.
- SPEED . . . . . 5～7Hz
- DEPTH . . . . . ±30 cents

UPPER ORGAN section
- ORGAN selector . . . . . CANCEL, ORGAN 1, ORGAN 2 ORGAN 3, MANUAL
- DECAY . . . . . OFF, ON→ 0.03～1.6 sec. (SUSTAIN lever S～L)
- SUSTAIN . . . . . OFF, ON→ 0.03～1.6 sec. (SUSTAIN lever S～L)
- BRILLIANCE . . . . . ±7dB/5kHz (Sine wave)
- PERCUSSIVE . . . . . 2nd, 3rd, 5th lever
- DECAY TIME . . . . . 0.8 sec./max.
- Tone Lever . . . . . 16', 8', 5-1/3', 4', 2-2/3', 2', 1-3/5', 1-1/3', 1'

LOWER ORGAN section
- ORGAN selector . . . . . CANCEL, ORGAN 1, ORGAN 2

POLY-SYNTH section
- STRINGS selector . . . . . CANCEL, STRING 1, STRING 2 STRING 3
- POLY-SYNTH selector . . CANCEL, POLY-SYNTH 1, POLY-SYNTH 2, POLY-SYNTH 3, MANUAL
- SLOW ATTACK . . . . . OFF: 3msec. ON: 80msec.
- SUSTAIN . . . . . SUSTAIN switch: ON, OFF
  SUSTAIN lever: 0.03～1.6 sec.
- BRILLIANCE . . . . . ±12dB/5kHz (Sine wave)
- MODE . . . . . I: one tone generator
  II: both tone generators
- FEET . . . . . 4'⅄, 8'⊓, BP8'⅄, 8'⅄, 16'⊓, 16'⅄
- CUT OFF FREQ . . . . . 10 octaves
- RESONANCE . . . . . Q : 0.5～10
- EG DEPTH . . . . . 10 octaves
- ATTACK TIME . . . . . 0.003～3 sec.
- DECAY TIME . . . . . 0.03～30 sec.
- SUSTAIN LEVEL . . . . 0～10
- RELEASE TIME . . . . . 0.03～30 sec.

TREMOLO/ENSEMBLE section (ENSEMBLE priority)
- TREMOLO . . . . . UPPER ORGAN, LOWER ORGAN POLY-SYNTH switch
- SPEED . . . . . OFF: 0.64Hz, ON: 6.4Hz
- ENSEMBLE . . . . . UPPER ORGAN, LOWER ORGAN POLY-SYNTH switch

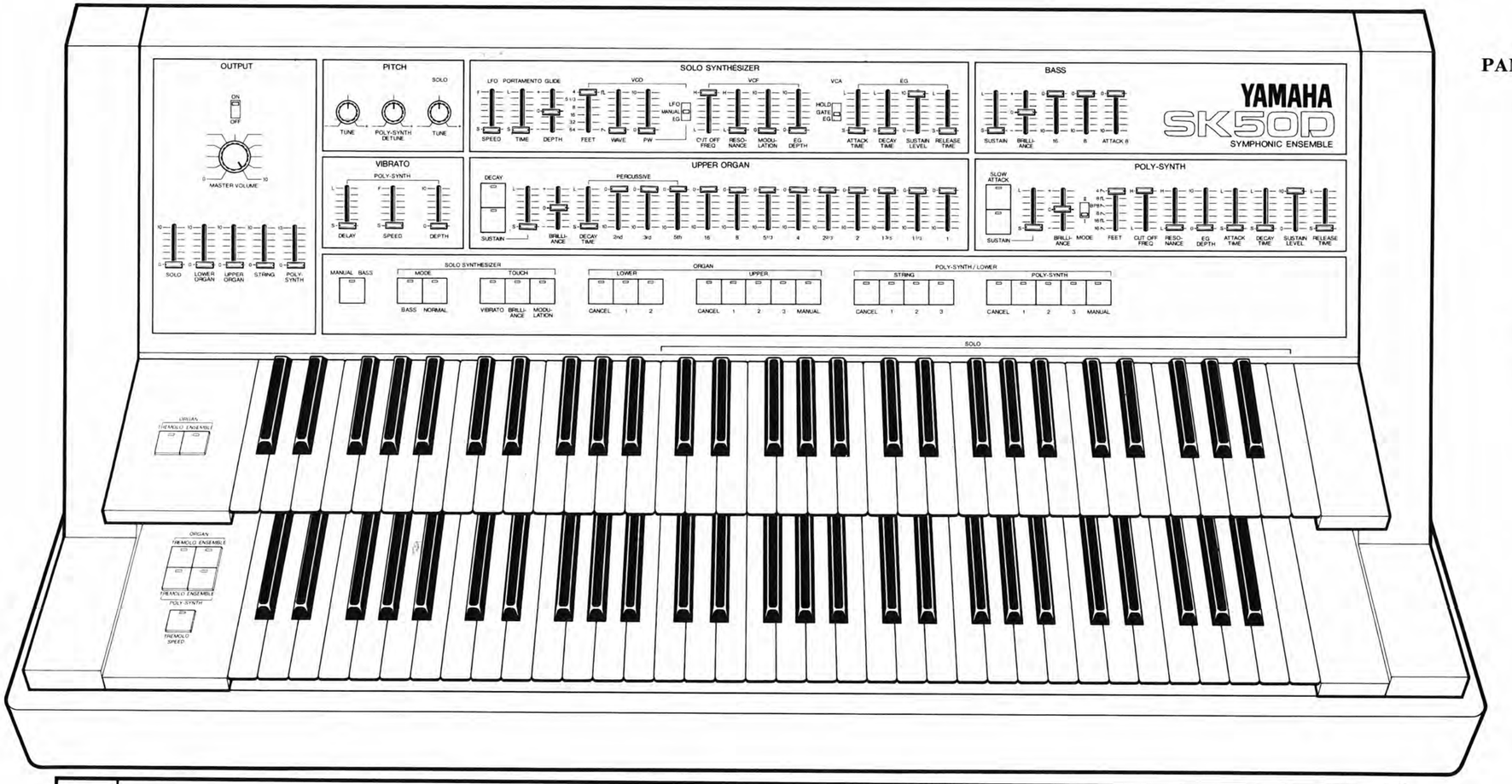
REAR PANEL
- OUTPUT . . . . . MIXED: 600Ω, −10dBm
  ORGAN, POLY-SYNTH, SOLO, BASS
- FOOT CONT . . . . . Foot controller connection
  MIXED VOLUME, STRING VOLUME, POLY-SYNTH BRILLIANCE
- FOOT SW . . . . . Foot switch connection
  SUSTAIN (ORGAN, POLY-SYNTH) PORTAMENTO (SOLO SYNTHESIZER)
- CONTROL VOLT . . . . . IN: 0.25～2V
  OUT: 0.19～3V
- TRIGGER . . . . . IN: 15～5V OFF, 0～−15V ON
  OUT: OFF (14～10V), ON (1～0V)
- KEY CODE . . . . . TTL level, key code data output
- PEDALS . . . . . Bass Pedal connection
- EXT TONECABINET . . . 11 pins connector, ON/OFF switch connectable the Leslie models 415, 715, 815 or equivalent (2ch-11 pin type)

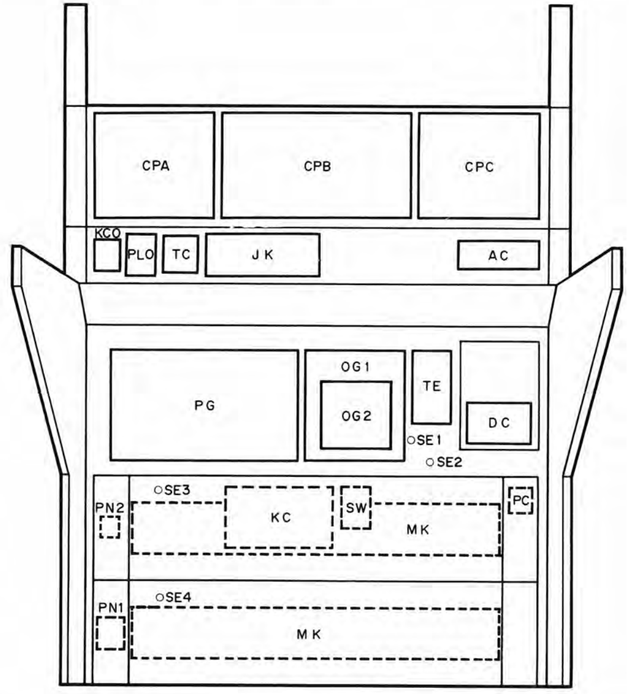
USABLE TONES (depending on MODE of SOLO SYNTHESIZER section)
- UPPER KEYBOARD . . NORMAL: OFF 7 notes
  NORMAL: ON 7 notes +1 note
- LOWER KEYBOARD . . BASS: OFF 7 notes
  BASS: ON 7 notes +1 note

OTHERS
- Power source . . . . . US and Canadian models
  100V, 120V selectable 60Hz
  General model
  100, 120, 220 or 240V selectable, 50/60Hz
- Power consumption . . . . US model 60W
  Canadian Model 60W
  General model 60W
- Dimensions (WxHxD) . . . 1128x237x642mm (without legs)
  (44-3/8' x 9-3/8' x 25-1/4')
- Finish . . . . . Rosewoodgrain cabinet
- Accessory . . . . . FC-3A Foot controller
- Optional Accessories . . . . FC-4 Foot switch pedal
  BP2 Bass pedal

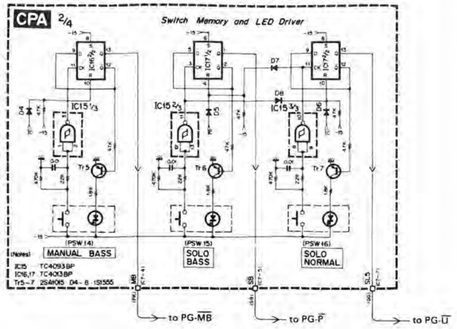
** Specifications subject to change without notice.*

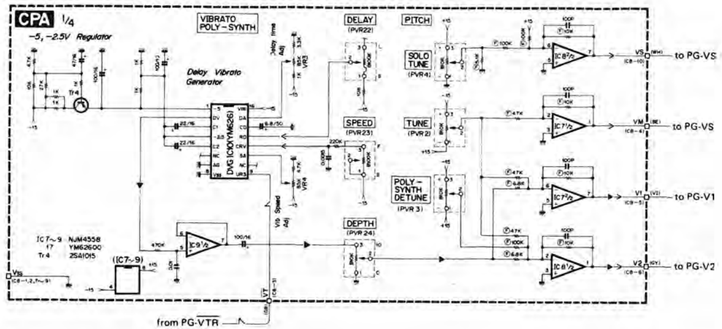
PANEL LAYOUT, UNIT LAYOUT

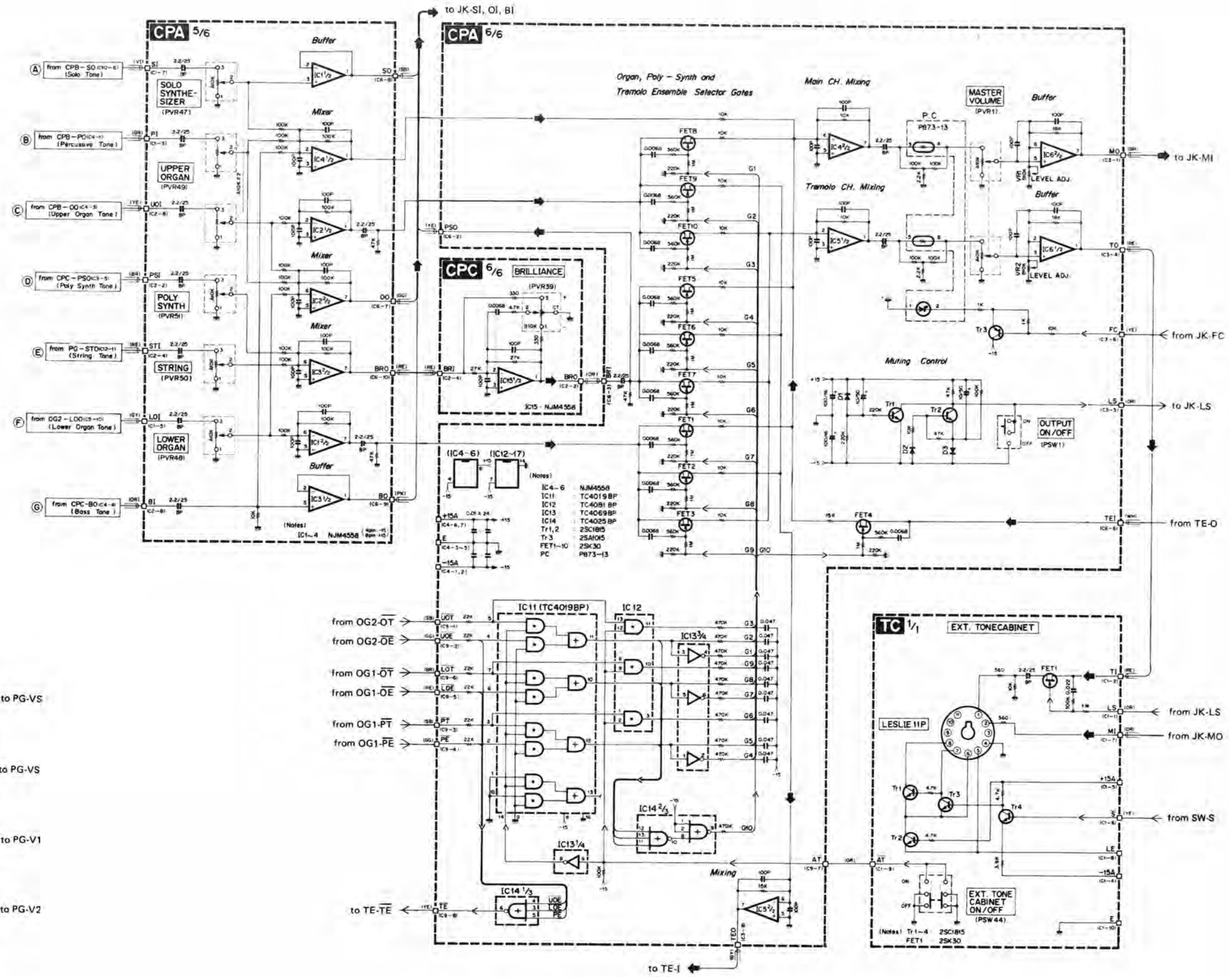




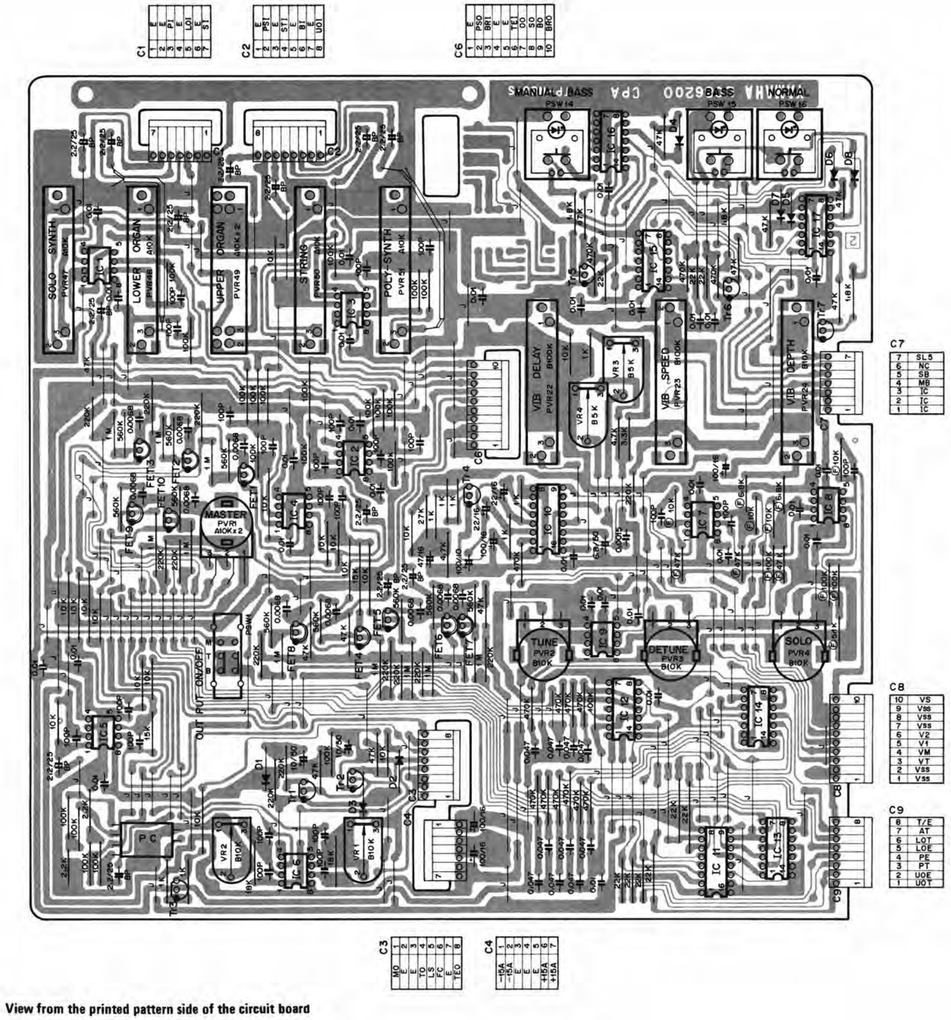
CPA Circuit Diagram







CPA Circuit Board & Wiring



View from the printed pattern side of the circuit board

C1

Pin No.	Pin Name	Wire Color	Destination
1	E	BL	JK-E (C1-8)
2	E	S GR S	
3	PI	S GR	CPB-PO (C4-1)
4	E	S GY S	
5	LOI	S GY	OG2-LOO (C5-10)
6	E	S VI S	
7	SI	S VI	CPB-SO (C10-6)

C2

Pin No.	Pin Name	Wire Color	Destination
1	E	S BR S	
2	PSI	S BR	CPC-PSO (C3-5)
3	E	S RE S	
4	STI	S RE	PG-STO (C12-1)
5	E	S OR S	
6	BI	S OR	CPC-BO (C4-4)
7	E	S YE S	
8	UOI	S YE	CPB-OO (C4-3)

C3

Pin No.	Pin Name	Wire Color	Destination
1	MO	S BR	JK-MI (C1-3)
2	E	S BR S	
3	E	S RE S	
4	TO	S RE	TC-TI (C1-2)
5	LS	OR	JK-LS (C1-1)
6	FC	YE	JK-FC (C3-3)
7	E	S GY S	
8	TEO	S GY	TE-I (C2-5)

C4

Pin No.	Pin Name	Wire Color	Destination
1	−15A	YE	DC- −15A (C2-2)
2	−15A	YE	CPB- −15A (C9-7)
3	E	BL	DC-E (C2-3)
4	E	BL	CPB-E (C9-3)
5	E	BL	TC-I-E (C1-8)
6	+15A	BR	DC- +15A (C2-1)
7	+15A	BR	CPB- +15A (C9-1)

C6

Pin No.	Pin Name	Wire Color	Destination
1	E	–	–
2	PSO	S YE	JK-PSI (C2-1)
3	BRI	S OR	CPC-BRO (C2-2)
4	E	S OR S	
5	E	S WH S	
6	TEI	S WH	TE-O (C3-3)
7	OO	S GG	JK-OI (C2-7)
8	SO	S SB	JK-SI (C2-3)
9	BO	S PK	JK-BI (C2-5)
10	BRO	S RE	CPC-BRI (C2-4)

C7

Pin No.	Pin Name	Wire Color	Destination
1	IC	GG	OG1-IC (C12-10)
2	IC	GG	CPB-IC (C1-1)
3	IC	GG	CPC-IC (C2-1)
4	MB	PK	PG-MB (C8-10)
5	SB	SB	PG-P (C4-5)
6	NC	–	–
7	SLS	GG	PG-L (C4-3)

C8

Pin No.	Pin Name	Wire Color	Destination
1	Vss	VI	DC-E (C3-3)
2	Vss	–	–
3	VT	GR	PG-VTR (C3-6)
4	VM	BE	OGI-VM (C2-5)
5	V1	VI	PG-V1 (C8-5)
6	V2	GY	PG-V2 (C6-4)
7	Vss	–	–
8	Vss	–	–
9	Vss	–	–
10	VS	WH	PG-VS (C9-1)

C9

Pin No.	Pin Name	Wire Color	Destination
1	UOT	SB	OG2-OT (C7-3)
2	UOE	GG	OG2-OE (C7-1)
3	PT	BR	OG1-PT (C15-5)
4	PE	RE	OG1-PE (C15-8)
5	LOE	GG	OG1-OE (C15-6)
6	LOT	SB	OG1-OT (C15-7)
7	AT	OR	TC-AT (C1-9)
8	T/E	YE	TE-T/E (C3-2)

Notes)

1. Circuit Board : LC86200 ③
2. IC, LSI
   - IC1 ~ 9 : NJM4558D (OP-Amp)
   - IC10 : YM62600 (DVG)
   - IC11 : TC4019BP (AND-OR Select)
   - IC12 : TC4081BP (AND)
   - IC13 : TC4069BP (Inverter)
   - IC14 : TC4025BP (3 Input NOR)
   - IC15 : TC4093BP (Schmitt Trigger NAND)
   - IC16, 17 : TC4013BP ("D" Flip-Flop)
3. Transistors
   - Tr1, 2 : 2SC1815 (O, Y)
   - Tr3 ~ 7 : 2SA1015 (O, Y)
4. Field Effect Transistors
   - FET1 ~ 10 : 2SK30A (Y)
5. Diodes
   - D1 ~ D8 : 1S1555
6. Ⓕ marked Resistor :
   - 1% 100PPM Metal Film Resistor
7. Photo Coupler
   - PC : P873-13
8. Capacitor
   - (K) marked: Ceramic Capacitor
9. Rotary Variable Resistor

PVR1	: A10K x 2	HS31099
PVR2, 3, 4	: B10K	HS31057

10. Slide Variable Resistor

PVR22	: B100K with Open	HQ23005
PVR23	: B100K	HQ23004
PVR24	: B10K	HQ23006
PVR47, 48, 50, 51	: A10K	HQ23002
PVR49	: A10K x 2	HQ23001

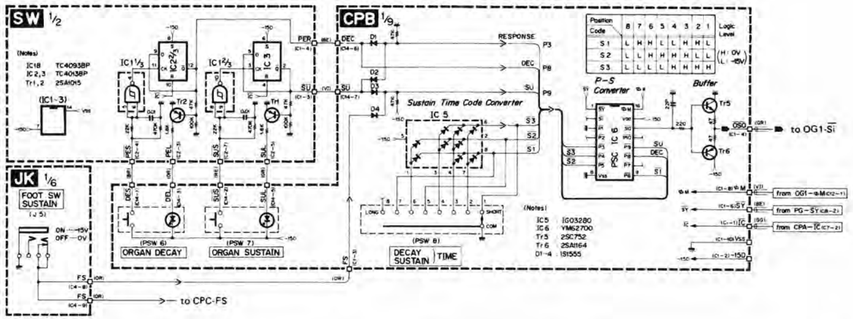
11. Slide Switch

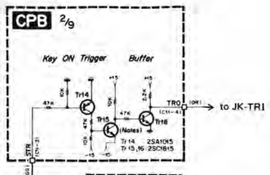
PSW1	: 2 way, 2 contact	KA40060

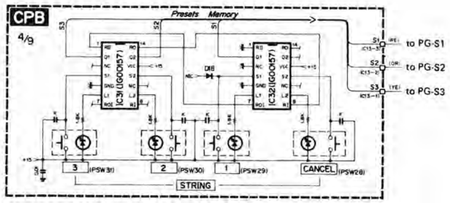
12. Push Switch with LED

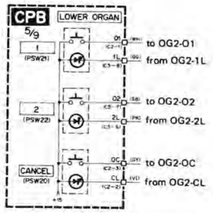
PSW14	: Gray	KA90170
PSW15, 16	: White	KA90171

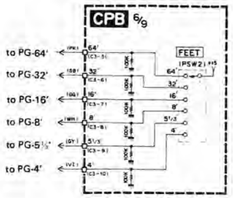
CPB Circuit Diagram

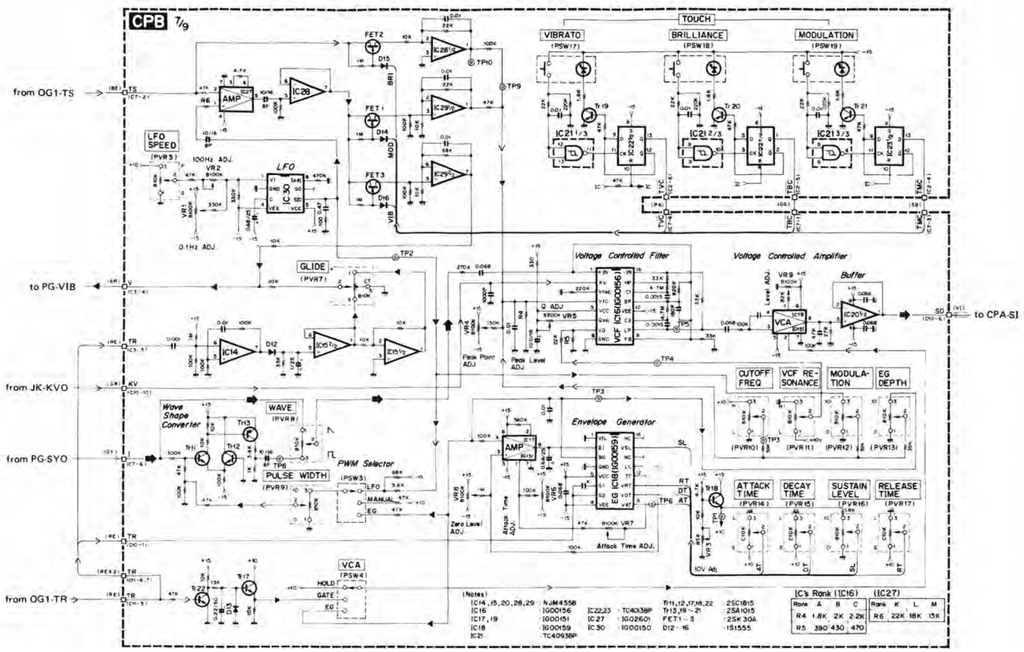


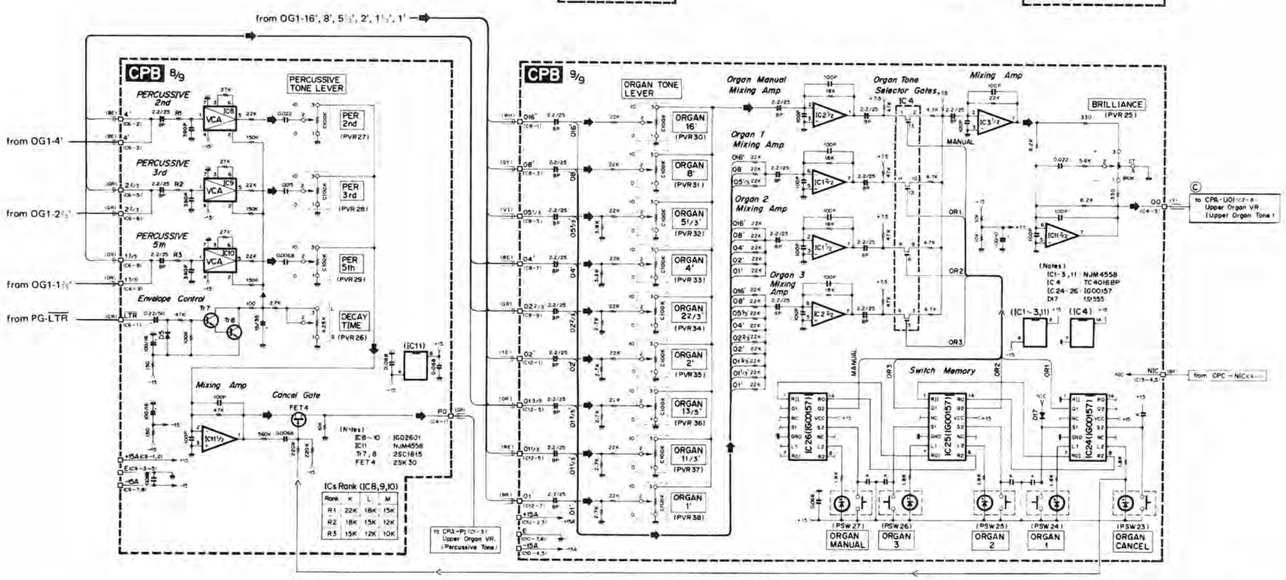




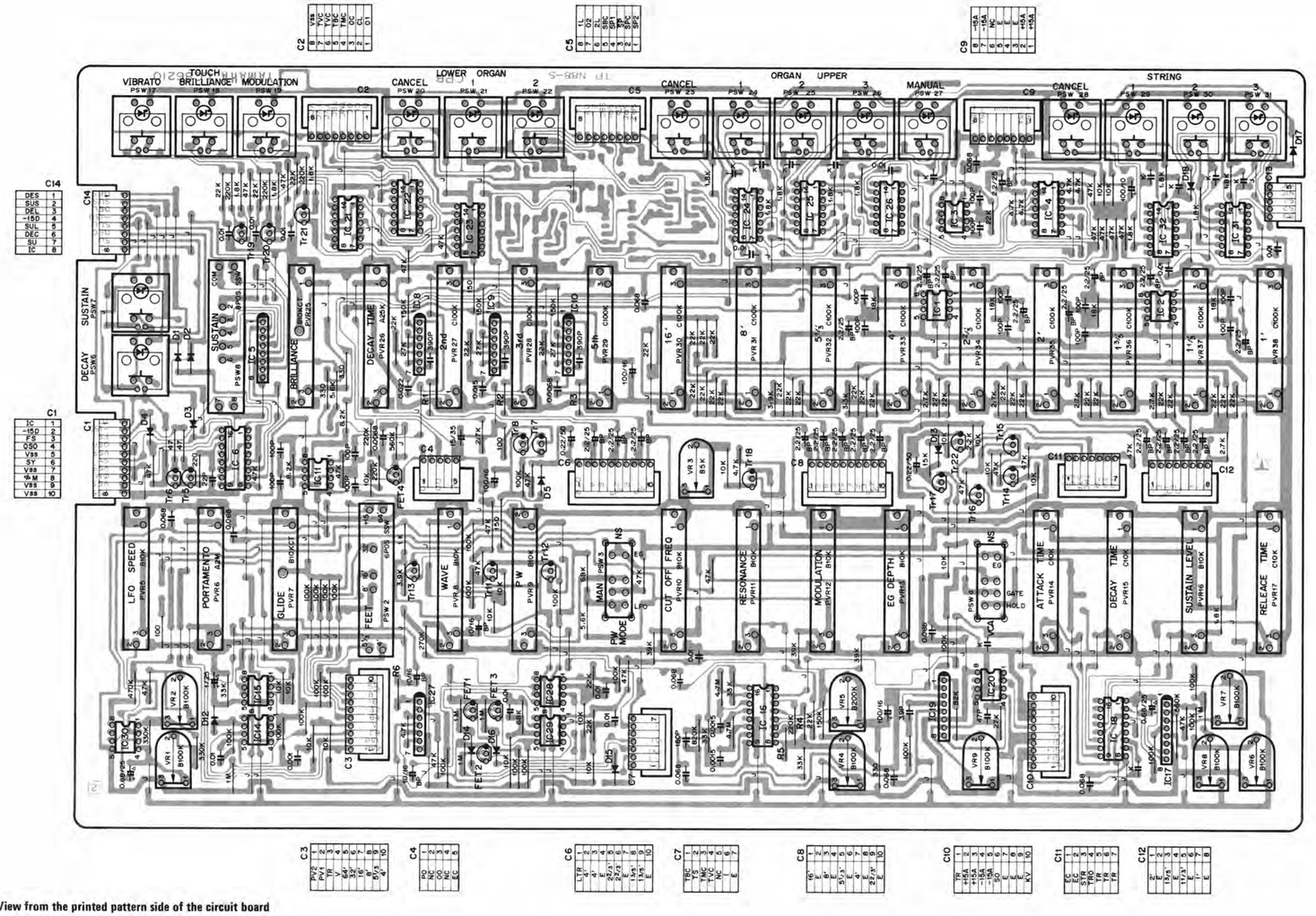








CPB Circuit Board & Wiring



View from the printed pattern side of the circuit board

C1

Pin No.	Pin Name	Wire Color	Destination
1	IC	GG	CPA-IC (C7-2)
2	−15D	YE	DC−15D (C2-5)
3	FS	OR	JK-FS (C4-8)
4	OSO	S GR	OG1-SI (C5-1)
5	Vss	S GR S	
6	SY	S BE	PG-SY (C8-2)
7	Vss	S BE S	
8	0M	S VI	OG1-0M (C12-1)
9	Vss	S VI S	
10	Vss	VI	DC-Vss (C2-4)

C2

Pin No.	Pin Name	Wire Color	Destination
1	O1	WH	OG2-O1 (C6-3)
2	CL	VI	OG2-CL (C6-3)
3	OC	GY	OG2-OC (C6-2)
4	TMC	SB	CPB-TMC (C7-3)
5	TBC	GG	CPB-TBC (C7-1)
6	TVC	PK	CPB-TVC (C7-4)
7	TVC	–	–
8	Vss	VI	CPC-Vss (C1-7)

C3

Pin No.	Pin Name	Wire Color	Destination
1	PV2	GR	PG-PV2 (C9-5)
2	PV1	OR	PG-PV1 (C9-4)
3	TR	RE	CPB-TR (C11-7)
4	V	BR	PG-VIB (C11-4)
5	64'	PK	PG-64' (C11-5)
6	32'	SB	PG-32' (C11-6)
7	16'	GG	PG-16' (C11-7)
8	8'	WH	PG-8' (C11-8)
9	5 1/3'	GY	PG-5 1/3' (C11-9)
10	4'	VI	PG-4' (C11-10)

C4

Pin No.	Pin Name	Wire Color	Destination
1	PO	S GR	CPA-PI (C1-3)
2	NC		
3	OO	S YE	CPA-JOI (C2-8)
4	NC		
5	EC	BL	CPB-EC (C11-2)

C5

Pin No.	Pin Name	Wire Color	Destination
1	SP2	–	–
2	SPC	–	–
3	SP	–	–
4	SP1	–	–
5	SEC	–	–
6	2L	PK	OG2-2L (C6-6)
7	O2	SB	OG2-O2 (C6-5)
8	1L	GG	OG2-1L (C6-4)

C6

Pin No.	Pin Name	Wire Color	Destination
1	LTR	GR	PG-LTR (C3-1)
2	4'	S BE	CPB-4' (C8-7)
3	4'	S BE	OG1-4' (C10-3)
4	E	S BE S	
5	2 2/3'	S GR	CPB-2 2/3' (C8-9)
6	2 2/3'	S GR	OG1-2 2/3' (C10-1)
7	E	S GR S	
8	1 3/5'	S OR	CPB-1 3/5' (C12-3)
9	1 3/5'	S OR	OG1-1 3/5' (C11-5)
10	E	S OR S	

C7

Pin No.	Pin Name	Wire Color	Destination
1	TBC	GG	CPB-TBC (C2-6)
2	TS	BE	OG1-TS (C13-4)
3	TMC	SB	CPB-TMC (C2-4)
4	TVC	PK	CPB-TVC (C2-8)
5	NC	–	–
6	I	S GY	PG-SYO (C11-2)
7	E	S GY S	

C8

Pin No.	Pin Name	Wire Color	Destination
1	16'	S WH	OG1-16' (C10-9)
2	E	S WH S	
3	8'	S GY	OG1-8' (C10-7)
4	E	S GY S	
5	5 1/3'	S VI	OG1-5 1/3' (C10-5)
6	E	S VI S	
7	4'	S BE	CPB-4' (C8-2)
8	E	S BE S	
9	2 2/3'	S GR	CPB-2 2/3' (C8-5)
10	E	S GR S	

C9

Pin No.	Pin Name	Wire Color	Destination
1	+15A	BR	CPA-+15A (C4-7)
2	+15A	BR	CPB-+15A (C10-2)
3	E	BL	CPA-E (C4-4)
4	E	BL	CPB-E (C10-7)
5	E	–	–
6	NC	–	–
7	−15A	YE	CPA-−15A (C4-2)
8	−15A	YE	CPB-−15A (C10-4)

C10

Pin No.	Pin Name	Wire Color	Destination
1	TR	RE	CPB-TR (C11-6)
2	+15A	BR	CPB-+15A (C9-2)
3	+15A	BR	CPC-+15A (C6-5)
4	−15A	YE	CPB-−15A (C9-8)
5	−15A	YE	CPC-−15A (C6-9)
6	SO	VI	CPA-SI (C1-7)
7	E	BL	CPB-E (C9-4)
8	E	BL	CPC-E (C6-7)
9	E	–	–
10	KV	GR	JK-KVO (C4-6)

C11

Pin No.	Pin Name	Wire Color	Destination
1	EC	BL	DC-Vss (C4-4)
2	EC	BL	CPB-EC (C4-5)
3	STR	GG	PG-STR (C9-2)
4	TRO	OR	JK-TRI (C4-1)
5	TR	RE	OG1-TR (C13-2)
6	TR	RE	CPB-TR (C10-1)
7	TR	RE	CPB-TR (C3-3)

C12

Pin No.	Pin Name	Wire Color	Destination
1	2'	S YE	OG1-2' (C11-7)
2	E	S YE S	
3	1 3/5	S OR	CPB-1 3/5' (C6-6)
4	E	S OR S	
5	1 1/3'	S RE	OG1-1 1/3' (C11-3)
6	E	S RE S	
7	1'	S BR	OG1-1' (C11-1)
8	E	S BR S	

C13

Pin No.	Pin Name	Wire Color	Destination
1	S3	YE	PG-S3 (C12-4)
2	S2	OR	PG-S2 (C12-3)
3	S1	RE	PG-S1 (C12-5)
4	NIC	–	–
5	NIC	BR	CPC-NIC (C6-1)

C14

Pin No.	Pin Name	Wire Color	Destination
1	DES	BR	SW-PES (C2-4)
2	SUS	RE	SW-SUS (C2-7)
3	DEL	OR	SW-PEL (C2-3)
4	−15D	YE	SW-−15D (C1-8)
5	SUL	GR	SW-SUL (C2-5)
6	DEC	BE	SW-PER (C1-4)
7	SU	VI	SW-SU (C1-3)
8	IC	GY	SW-IC (C1-1)

Notes)

1. Circuit Board : LC86210 [2]
2. IC, LSI
   - IC1 ~ 3, 11, 14, 15, 20, 28, 29 : NJM4558DV (OP-Amp)
   - IC4 : TC4016BP (Analog SW)
   - IC5 : iG03280 (Diode Matrix)
   - IC6 : YM62700 (PSC)
   - IC8 ~ 10, 27 : iG02601 (VCA)
   - IC16 : iG00156 (+VCF)
   - IC17, 19 : iG00151 (VCA)
   - IC18 : iG00159 (EG-VCA)
   - IC21 : TC4093BP (NAND Schmitt Trigger)
   - IC22, 23 : TC4013BP ("D" Flip-Flop)
   - IC24 ~ 26, 31, 32 : iG00157 (SW Memory)
   - IC30 : iG00150 (VCOII)
3. Transistors
   - Tr5 : 2SC752 (Y)
   - Tr6 : 2SA1164 (GR)
   - Tr7, 8, 11, 12, 15 ~ 18, 22 : 2SC1815 (O, Y)
   - Tr13, 14, 19 ~ 21 : 2SA1015 (O, Y)
4. Field Effect Transistors
   - FET1 ~ 4 : 2SK30A (Y)
5. Diodes
   - D1 ~ 5, 12 ~ 18 : 1S1555
6. Capacitor
   - (K) marked : Ceramic Capacitor 1000P
   - (△) marked : Solid Aluminum Capacitor
7. Set "R1 ~ R6" in accordance with the following table. See illust for VCA (IC8 ~ 10, 27) rank.

IC number \ rank	R	K	L	M
IC8	R1	22K	18K	15K
IC9	R2	18K	15K	12K
IC10	R3	15K	12K	10K
IC27	R6	22K	18K	15K

8. Set "R4, R5" in accordance with the following table. See illust for VCF (IC16) rank.

R \ rank	A	B	C
R4	1.8K	2K	2.2K
R5	390	430	470

9. Semi-Variable Resistor
   VR1 ~ 9 : V10K type
10. Slide Variable Resister

PVR5, 8 ~ 13, 16 : B10K		HQ23006
PVR6	: A2M	HQ23011
PVR7, 25	: B10KCT	HQ23007
PVR14, 15, 17	: C10K	HQ23009
PVR26	: A25K	HQ23003
PVR27 ~ 38	: C100K	HQ23008

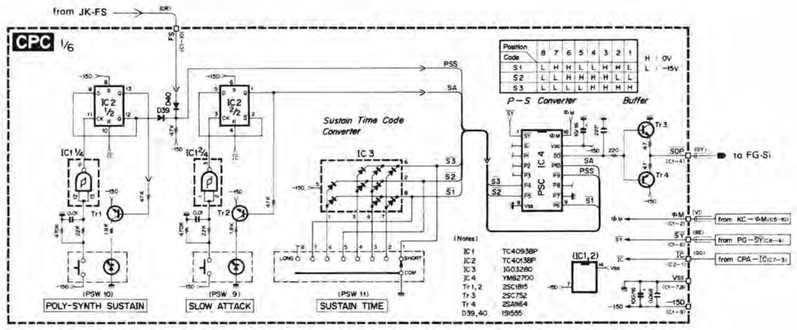
11. Slide Switch

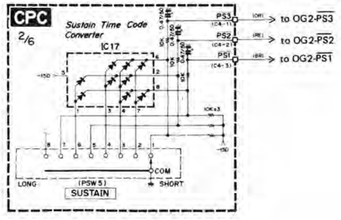
PSW2	: 6 contact with click	KA40080
PSW3, 4	: 2 way, 3 contact (Non shorting)	KA40059
PSW8	: 8 contact (Non click)	KA40079

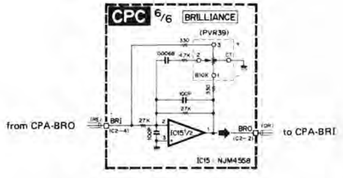
12. Push Switch with LED

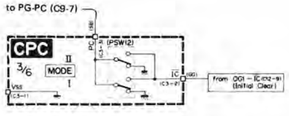
PSW6, 7, 17 ~ 20, 23, 28	: Gray	KA90170
PSW21, 22, 24 ~ 27, 29 ~ 31	: White	KA90171

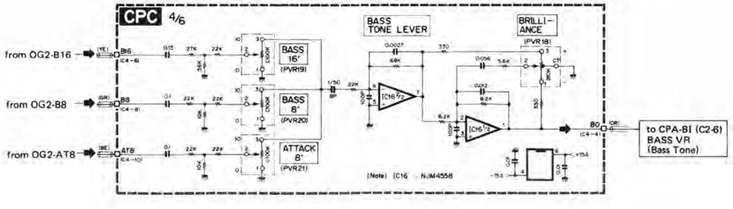
CPC Circuit Diagram

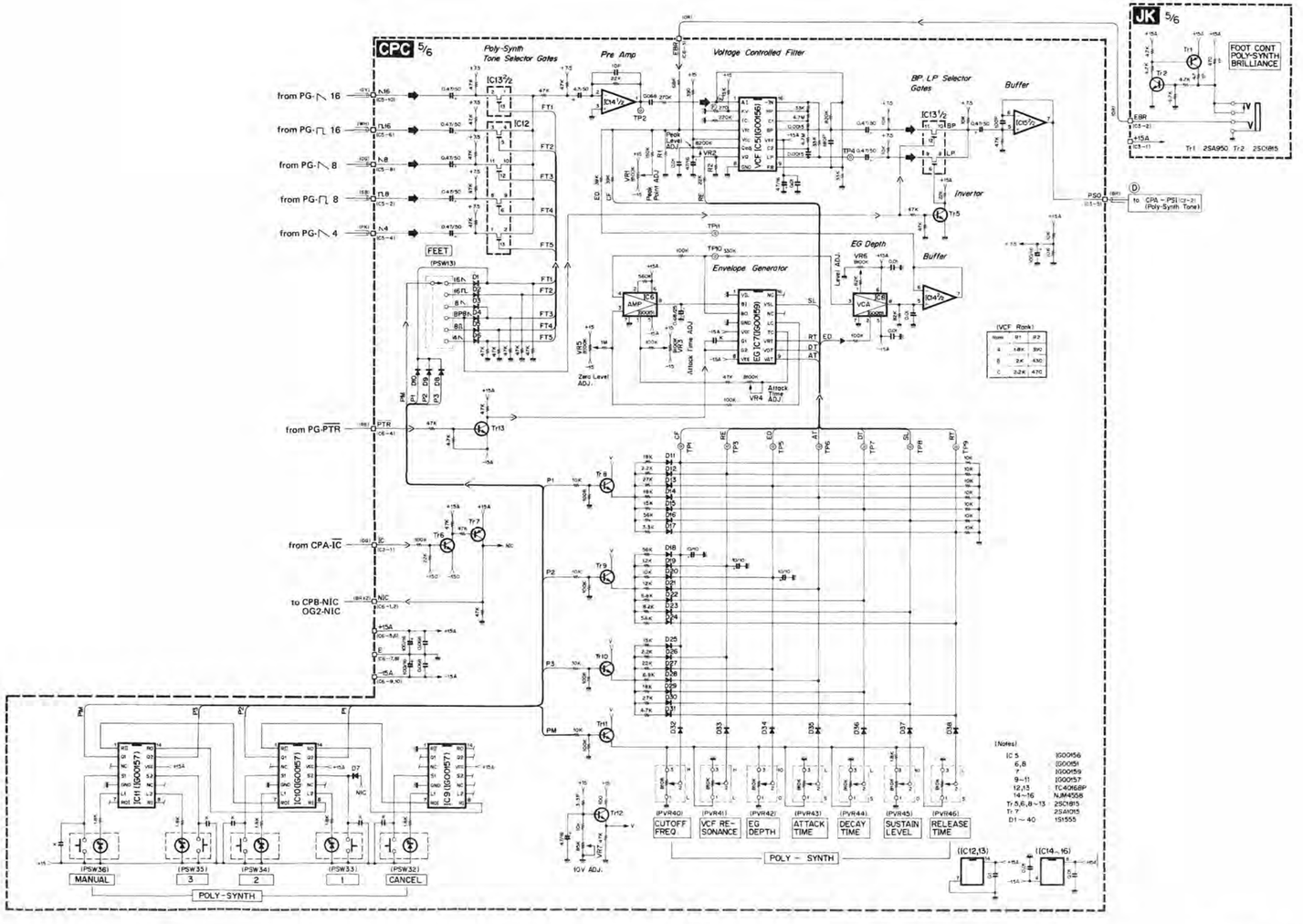




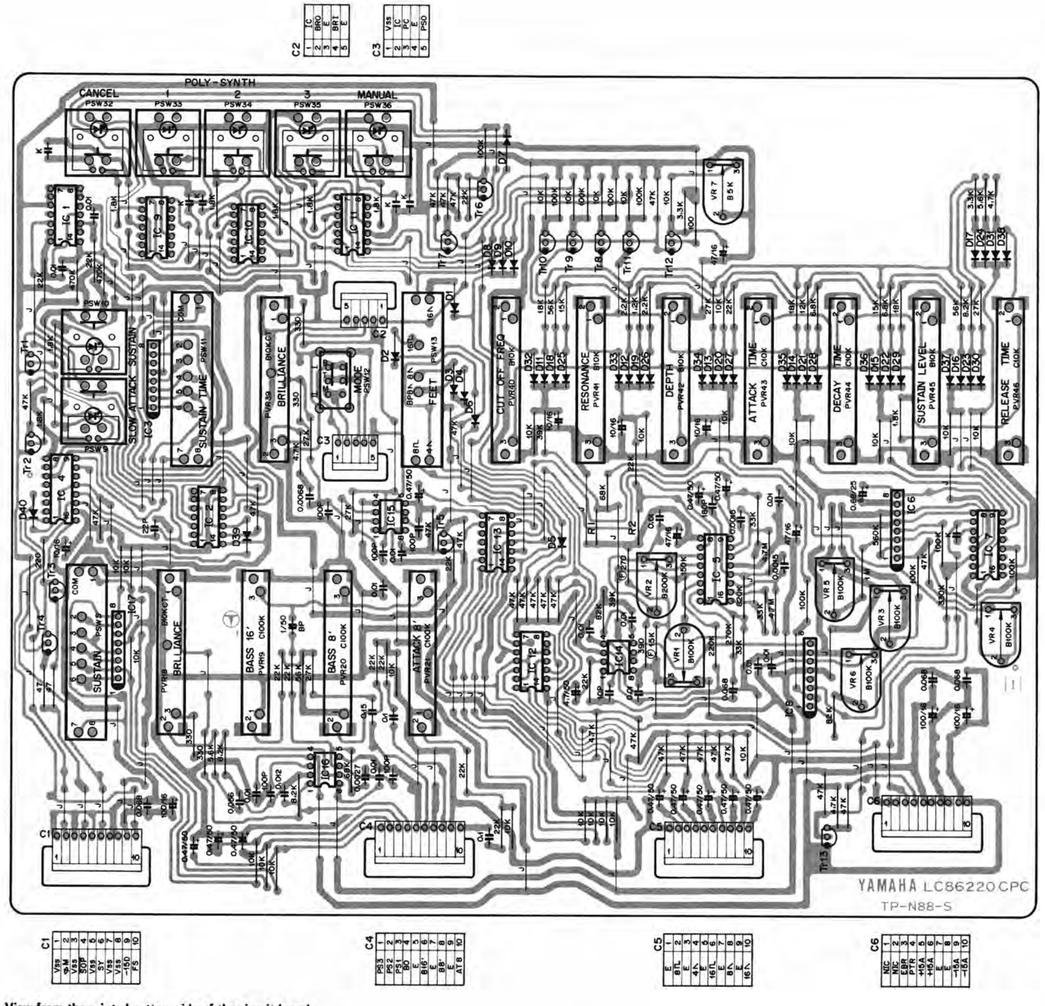








CPC Circuit Board & Wiring



View from the printed pattern side of the circuit board

C1

Pin No.	Pin Name	Wire Color	Destination
1	Vss	S VI S	
2	ØM	S VI	KC-ØM (C5-10)
3	Vss	S GY S	
4	SOP	S GY	PG-SI (C8-7)
5	Vss	S BE S	
6	SY	S BE	PG-SY (C8-4)
7	Vss	VI	CPB-Vss (C2-8)
8	Vss	VI	DC-Vss (C3-4)
9	−15D	YE	DC − 15D (C3-5)
10	FS	OR	JK-FS (C4-9)

C2

Pin No.	Pin Name	Wire Color	Destination
1	IC	GG	CPA-IC (C7-3)
2	BRO	S OR	CPA-BRI (C8-3)
3	E	S OR S	
4	BRI	S RE	CPA-BRO (C6-10)
5	E	S RE S	

C3

Pin No.	Pin Name	Wire Color	Destination
1	Vss	VI	PG-Vss (C7-7)
2	IC	GG	OG1-IC (C12-9)
3	PC	SB	PG-PC (C9-7)
4	E	S BR S	
5	PSO	S BR	CPA-PSI (C2-2)

C4

Pin No.	Pin Name	Wire Color	Destination
1	PS3	OR	OG2-PS3 (C5-1)
2	PS2	RE	OG2-PS2 (C5-2)
3	PS1	BR	OG2-PS1 (C5-3)
4	BO	S OR	CPA-BI (C2-6)
5	E	S YE S	
6	B16'	S YE	OG2-B16' (C5-4)
7	E	S GR S	
8	88'	S GR	OG2-88' (C5-6)
9	E	S BE S	
10	ATB	S BE	OG2-ATB (C5-8)

C5

Pin No.	Pin Name	Wire Color	Destination
1	E	S SB S	
2	8'⊓	S SB	PG-8'⊓ (C13-2)
3	E	S PK S	
4	4'∧	S PK	PG-4'∧ (C13-1)
5	E	S WH S	
6	16'⊓	S WH	PG-16'⊓ (C13-3)
7	E	S GG S	
8	8'∧	S GG	PG-8'∧ (C13-5)
9	E	S GY S	
10	16'∧	S GY	PG-16'∧ (C13-4)

C6

Pin No.	Pin Name	Wire Color	Destination
1	NIC	BR	CPB-NIC (C13-5)
2	NIC	BR	OG2-NIC (C6-7)
3	EBR	OR	JK-EBR (C3-2)
4	PTR	RE	PG-PTR (C3-7)
5	+15A	BR	CPB-+15A (C10-3)
6	+15A	BR	JK-+15A (C3-1)
7	E	BL	CPB-E (C10-8)
8	E	BL	JK-E (C4-10)
9	−15A	YE	CPB-−15A (C10-5)
10	−15A	YE	JK-−15A (C3-6)

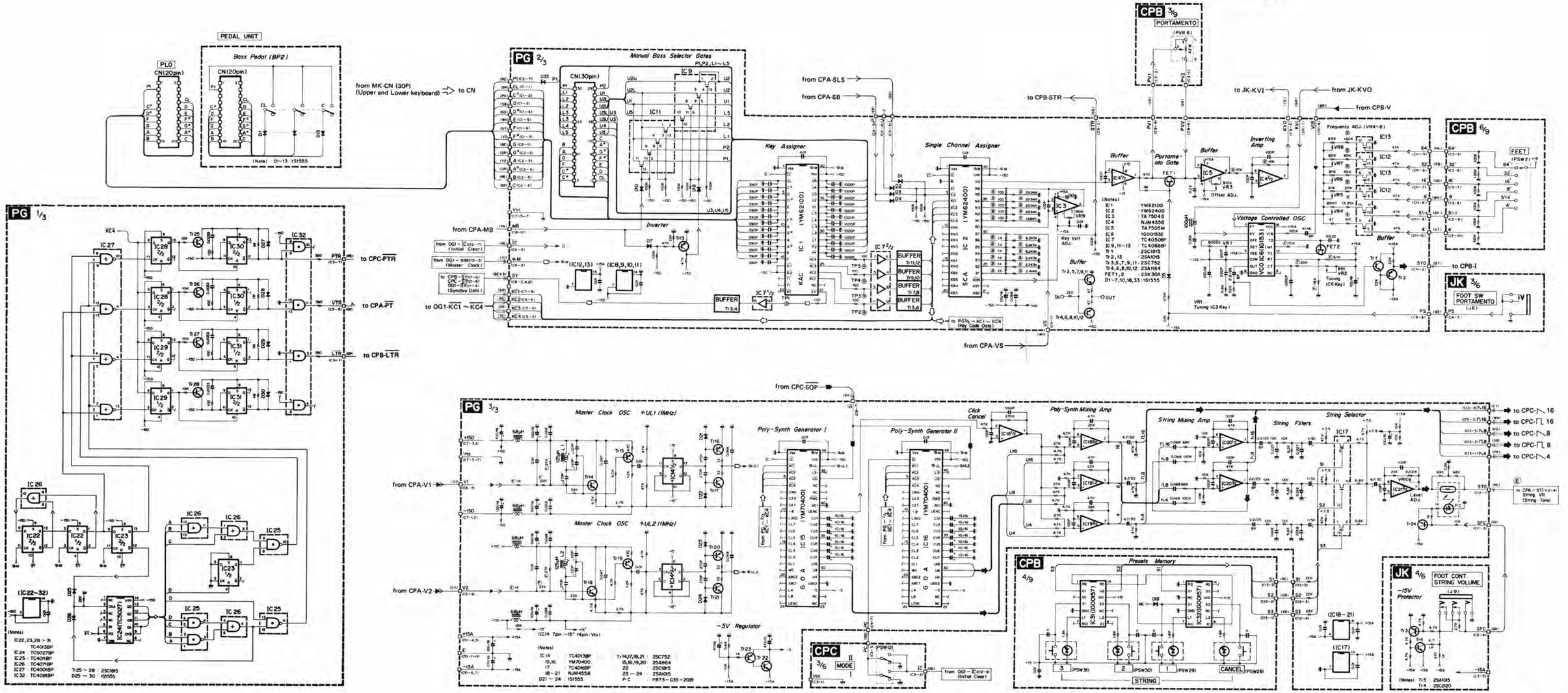
Notes)

1. Circuit Board : LC86220 ①
2. IC, LSI
   - IC1 : TC4093BP (NAND, Schmitt Trigger)
   - IC2 : TC4013BP ("D" Flip-Flop)
   - IC3, 17 : iG03280 (Diode Matrix)
   - IC4 : YM62700 (PSC)
   - IC5 : iG00156 (+VCF)
   - IC6, 8 : iG00151 (VCA)
   - IC7 : iG00159 (EG-VCA)
   - IC9, 10, 11 : iG00157 (SW Memory)
   - IC12, 13 : TC4016BP (Analog SW)
   - IC14, 15, 16 : NJM4558DV (OP-Amp)
3. Transistors
   - Tr1, 2, 5, 6, 8 ~ 13 : 2SC1815 (O, Y)
   - Tr3 : 2SC752 (Y)
   - Tr4 : 2SA1164 (GR)
   - Tr7 : 2SA1015 (O, Y)
4. Diodes
   - D1 ~ 40 : 1S1555
5. Capacitor
   - (K) marked : Ceramic Capacitor 1000P
   - ▲ marked : Solid Aluminum Capacitor
6. Set "R1, R2" in accordance with the following table. See illust for VCF (IC16) rank.

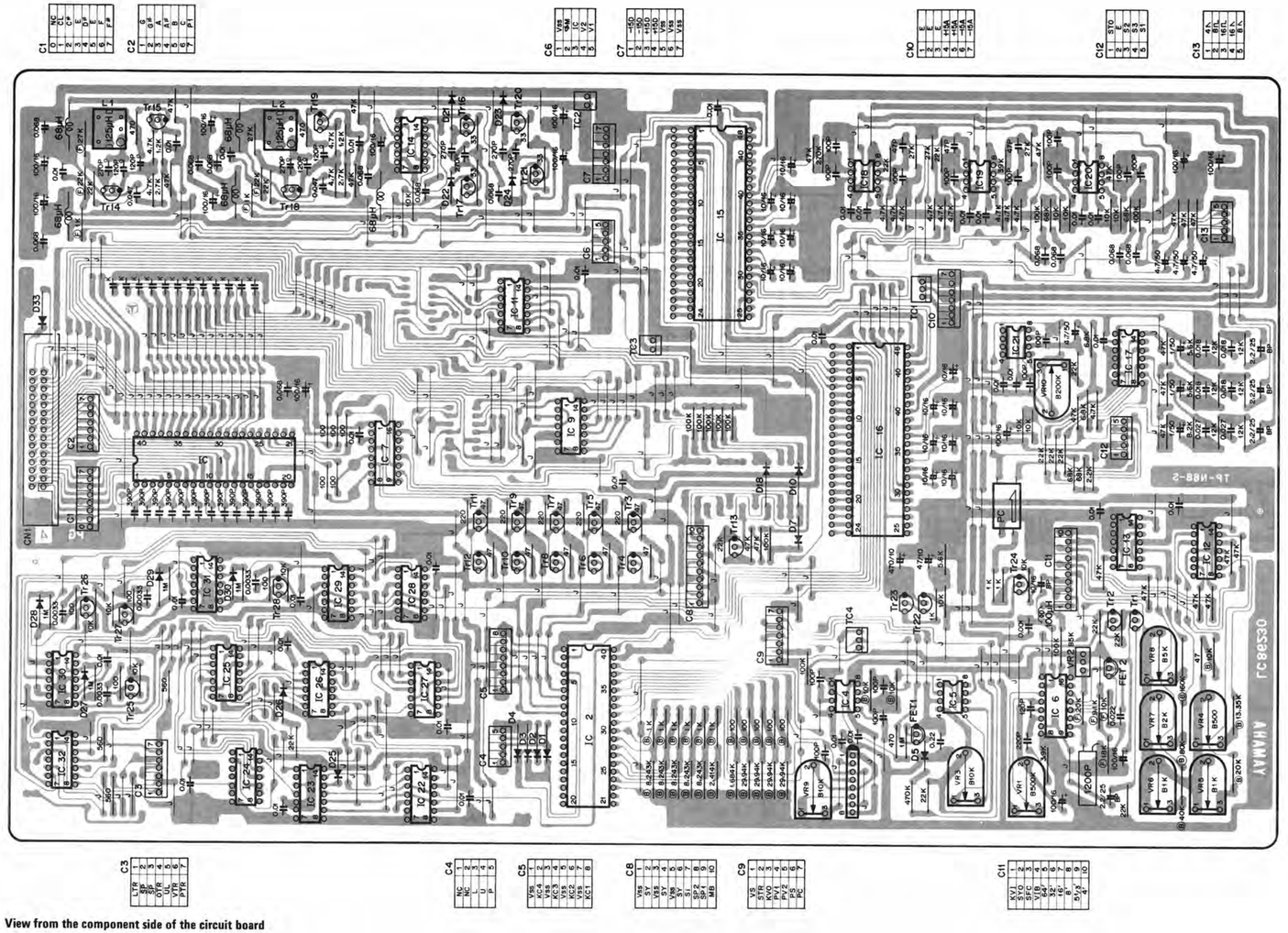
R \ rank	A	B	C
R1	1.8K	2K	2.2K
R2	390	430	470

7. Ⓕ marked : Metal Film Resistor (1%)
8. Semi-Variable Resistor
   - VR1 ~ 7 : V10K type
9. Slide Variable Resistor
   - PVR40 ~ 42, 45 : B10K HQ23006
   - PVR18, 39 : B10KCT HQ23007
   - PVR19 ~ 21 : C100K HQ23008
   - PVR43, 44, 46 : C10K HQ23009
10. Slide Switch
    - PSW12 : 2 way, 2 contact (NS) KA40060
    - PSW5, 11 : 8 contact (non click) KA40079
    - PSW13 : 6 contact (with click) KA40080
11. Push Switch with LED
    - PSW9, 10, 32 : Gray
    - PSW33 ~ 36 : White

PG Circuit Diagram



PG Circuit Board & Wiring



View from the component side of the circuit board

C1

Pin No.	Pin Name	Wire Color	Destination
0	NC	–	–
1	CL	BR	PLO-CL (CN-8)
2	C♯	PK	PLO-C♯ (CN-9)
3	E	SB	PLO-D (CN-10)
4	D♯	GG	PLO-D♯ (CN-11)
5	E	WH	PLO-E (CN-12)
6	F	GY	PLO-F (CN-13)
7	F♯	VI	PLO-F♯ (CN-14)

C2

Pin No.	Pin Name	Wire Color	Destination
1	G	BE	PLO-G (CN-15)
2	G♯	GR	PLO-G♯ (CN-16)
3	A	YE	PLO-A (CN-17)
4	A♯	OR	PLO-A♯ (CN-18)
5	B	RE	PLO-B (CN-19)
6	C	BR	PLO-C (CN-20)
7	P1	RE	PLO-P1 (CN-3)

C3

Pin No.	Pin Name	Wire Color	Destination
1	LTR	GR	CPB-LTR (C6-1)
2	SP	–	–
3	SP	–	–
4	OTR	–	–
5	UL	–	–
6	VTR	GR	CPA-VT (C3-2)
7	PTR	RE	CPC-PTR (C6-4)

C4

Pin No.	Pin Name	Wire Color	Destination
1	NC	–	–
2	NC	–	–
3	L	GG	CPA-SL5 (C7-7)
4	U	–	–
5	P	SB	CPA-SB (C7-5)

C5

Pin No.	Pin Name	Wire Color	Destination
1	Vss	S YE S	
2	KC4	S YE	OG1-KC4 (C5-9)
3	Vss	S OR S	
4	KC3	S OR	OG1-KC3 (C5-7)
5	Vss	S RE S	
6	KC2	S RE	OG1-KC2 (C5-5)
7	Vss	S BR S	
8	KC1	S BR	OG1-KC1 (C5-3)

C6

Pin No.	Pin Name	Wire Color	Destination
1	Vss	S VI S	
2	ϕM	S VI	OG1-ϕM (C12-5)
3	IC	GG	OG1-IC (C12-7)
4	V2	GY	CPA-V2 (C6-6)
5	V1	VI	CPA-V1 (C8-5)

C7

Pin No.	Pin Name	Wire Color	Destination
1	−15D	YE	OG1-−15D (C1-5)
2	−15D	–	–
3	+15D	BR	OG1-+15D (C2-3)
4	+15D	–	–
5	Vss	VI	KC-Vss (C4-4)
6	Vss	VI	OG1-Vss (C1-2)
7	Vss	VI	CPC-Vss (C3-1)

C8

Pin No.	Pin Name	Wire Color	Destination
1	Vss	S BE S	
2	SY	S BE	CPB-SY (C1-6)
3	Vss	S BE S	
4	SY	S BE	CPC-SY (C1-6)
5	Vss	S BE S	
6	SY	S BE	OG1-SY (C1-4)
7	SI	S GY	CPC-SOP (C1-4)
8	SP2	–	–
9	SP1	–	–
10	MB	PK	CPA-MB (C7-4)

C9

Pin No.	Pin Name	Wire Color	Destination
1	VS	WH	CPA-VS (C8-10)
2	STR	GG	CPB-STR (C11-3)
3	KVO	YE	JK-KVI (C4-3)
4	PV1	OR	CPB-PV1 (C3-2)
5	PV2	GR	CPB-PV2 (C3-1)
6	PS	BE	JK-PS (C4-7)
7	PC	SB	CPC-PC (C3-3)

C10

Pin No.	Pin Name	Wire Color	Destination
1	E	BL	OG1-E (C8-6)
2	E	–	–
3	E	–	–
4	+15A	BR	OG1-+15A (C8-2)
5	+15A	–	–
6	−15A	–	–
7	−15A	YE	OG1-−15A (C8-4)

C11

Pin No.	Pin Name	Wire Color	Destination
1	KVI	GR	JK-KVO (C4-4)
2	SYO	S GY	CPB-I (C7-6)
3	SFC	GR	JK-SFC (C3-4)
4	VIB	BR	CPB-V (C3-4)
5	64'	PK	CPB-64' (C3-5)
6	32'	SB	CPB-32' (C3-6)
7	16'	GG	CPB-16' (C3-7)
8	8'	WH	CPB-8' (C3-8)
9	5 1/3'	GY	CPB-5 1/3' (C3-9)
10	4'	VI	CPB-4' (C3-10)

C12

Pin No.	Pin Name	Wire Color	Destination
1	STO	S RE	CPA-STI (C2-4)
2	E	S RE S	
3	S2	OR	CPB-S2 (C13-2)
4	S3	YE	CPB-S3 (C13-1)
5	S1	RE	CPB-S1 (C13-3)

C13

Pin No.	Pin Name	Wire Color	Destination
1	4h	S PK	CPC-4h (C5-4)
2	8⅓	S SB	CPC-8⅓ (C5-2)
3	16⅔	S WH	CPC-16⅔ (C5-6)
4	16h	S GY	CPC-16h (C5-10)
5	8h	S GG	CPC-8h (C5-8)

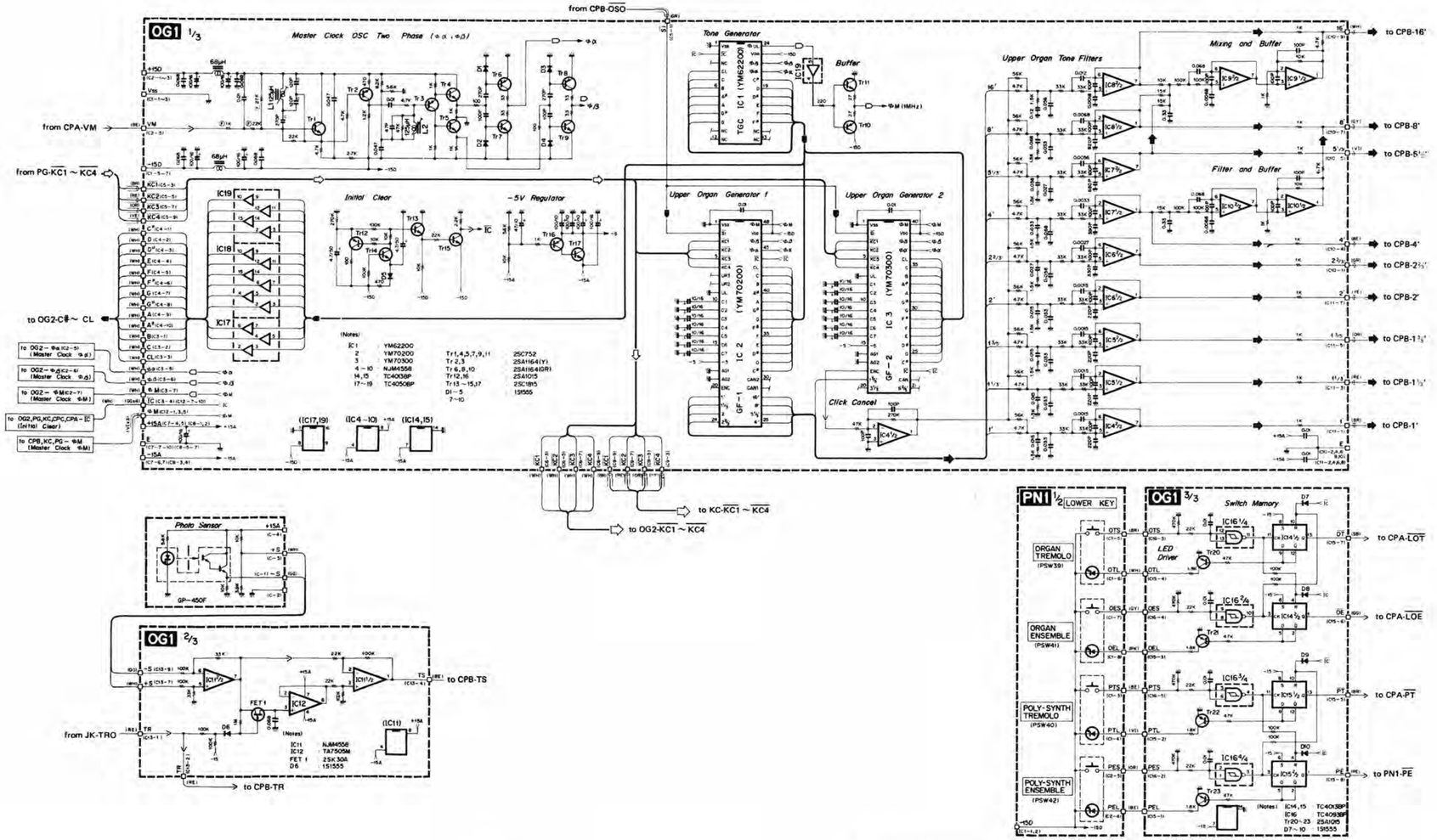
PLO

Pin No.	Pin Name	Wire Color	Destination
1	–	–	–
2	–	–	–
3	P1	RE	PG-P1 (C2-7)
4	–	–	–
5	–	–	–
6	–	–	–
7	–	–	–
8	CL	BR	PG-CL (C1-1)
9	C♯	PK	PG-C♯ (C1-2)
10	D	SB	PG-D (C1-3)
11	D♯	GG	PG-D♯ (C1-4)
12	E	WH	PG-E (C1-5)
13	F	GY	PG-F (C1-6)
14	F♯	VI	PG-F♯ (C1-7)
15	G	BE	PG-G (C2-1)
16	G♯	GR	PG-G♯ (C2-2)
17	A	YE	PG-A (C2-3)
18	A♯	OR	PG-A♯ (C2-4)
19	B	RE	PG-B (C2-5)
20	C	BR	PG-C (C2-6)

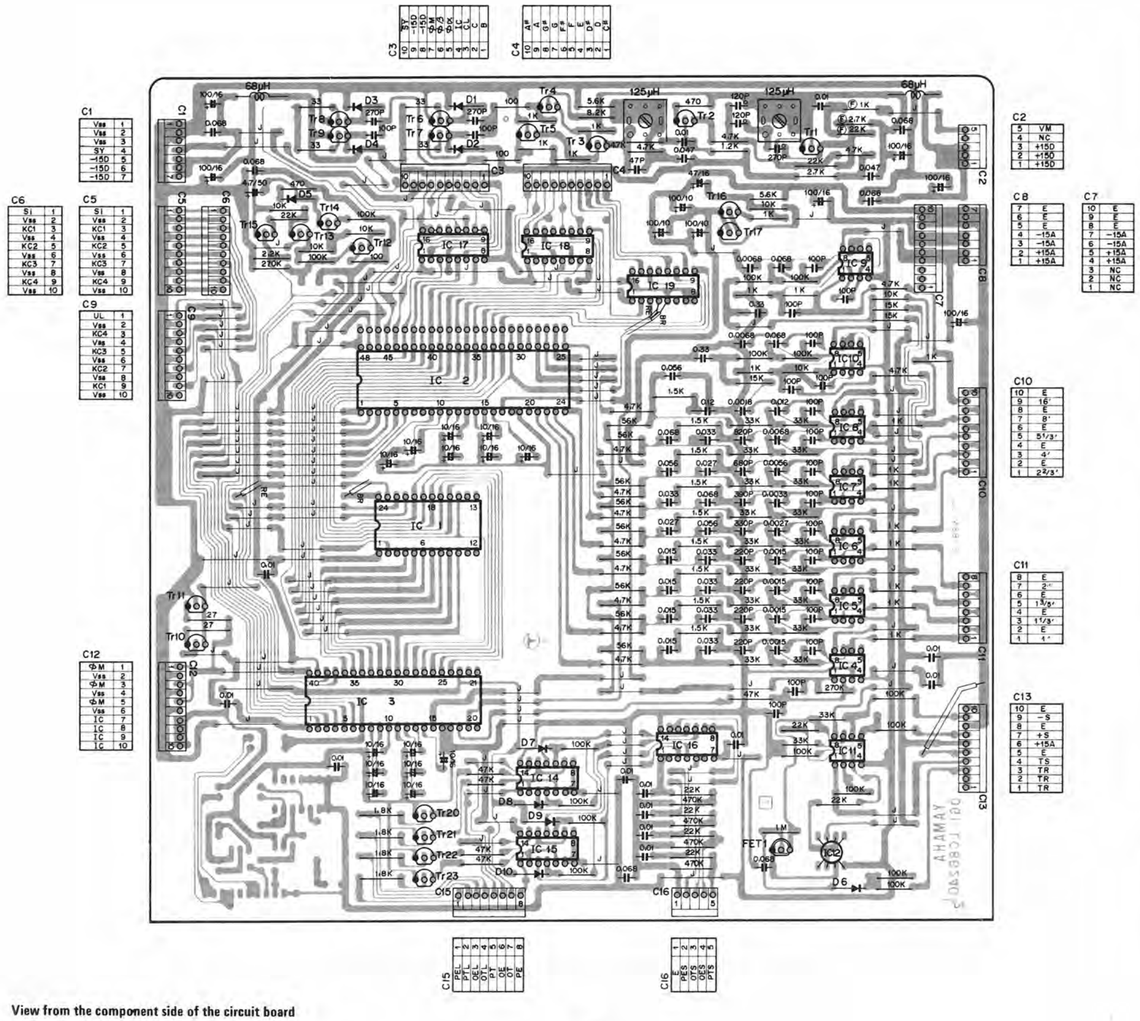
Notes)

1. Circuit Board : LC86230 ③
2. IC, LSI
   - IC1 : YM62100 (KAC)
   - IC2 : YM62400 (SCA)
   - IC3 : TA7504S (OP-Amp)
   - IC4, 18 ~ 21 : NJM4558DV (OP-Amp)
   - IC5 : TA7505M (OP-Amp)
   - IC6 : iG00153 Ⓔ (VCOIII)
   - IC7 : TC4050BP (Buffer)
   - IC9, 11 ~ 13 : TC4066BP (Analog SW)
   - IC14, 22, 23, 28 ~ 31 : TC4013BP ("D" Flip-Flop)
   - IC15, 16 : YM70400 (GOA)
   - IC17 : TC4016BP (Analog SW)
   - IC24 : TC5027BP (Counter)
   - IC25 : TC4011BP (2 IN NAND)
   - IC26 : TC4071BP (2 IN OR)
   - IC27 : TC4001BP (2 IC NOR)
   - IC32 : TC4081BP (2 IN AND)
3. Transistors
   - Tr1, 22, 25 ~ 28 : 2SC1815 (O, Y)
   - Tr2, 13, 23, 24 : 2SA1015 (O, Y)
   - Tr3, 5, 7, 9, 11, 14, 17, 18, 21 : 2SC752 (Y)
   - Tr4, 6, 8, 10, 12, 16, 20 : 2SA1164 (GR)
   - Tr15, 19 : 2SA1164 (Y)
4. Field Effect Transistors
   - FET1, 2 : 2SK30A (Y)
5. Diodes
   - D1 ~ 5, 7, 10, 18 21 ~ 30, 33 : 1S1555
6. Capacitor
   - (K) marked : Ceramic Capacitor 1000P
   - (○) marked : Polystyrene Capacitor
7. Coil
   - 125μH : OSC Coil
8. Resistor
   - Ⓑ marked : Metal Oxide Film Resistor (±0.1%)
   - Ⓕ marked : Metal Oxide Film Resistor (±1%)
9. Semi-Variable Resistor
   - VR2 : RJ9W
10. Photo Coupler
    - PC : P873-G35-201B

OG1 Circuit Diagram



OG1 Circuit Board & Wiring



View from the component side of the circuit board

C1

Pin No.	Pin Name	Wire Color	Destination
1	Vss	VI	DC-Vss (C1-4)
2	Vss	VI	PG-Vss (C7-6)
3	Vss	S BE	S
4	SY	S BE	PG-SY (C8-6)
5	−15D	YE	PG- −15D (C7-1)
6	−15D	YE	KC- −15D (C4-2)
7	−15D	YE	DC- −15D (C1-5)

C2

Pin No.	Pin Name	Wire Color	Destination
1	+15D	BR	DC- +15D (C1-6)
2	+15D	BR	KG-+15D (C4-7)
3	+15D	BR	PG-+15D (C7-3)
4	NC	–	–
5	VM	BE	CPA-VM (C8-4)

C3

Pin No.	Pin Name	Wire Color	Destination
1	B	WH	OG2-B (C2-1)
2	C	WH	OG2-C (C2-2)
3	CL	WH	OG2-CL(C2-3)
4	IC	WH	OG2-IC (C2-4)
5	φ2	WH	OG2-φ2 (C2-5)
6	ϕJ	WH	OG2-ϕJ (C2-6)
7	ϕM	WH	OG2-ϕM (C2-7)
8	−15D	WH	OG2- −15D (C2-8)
9	−15D	WH	OG2- −15D (C2-9)
10	SY	WH	OG2-SY (C2-10)

C4

Pin No.	Pin Name	Wire Color	Destination
1	C#	WH	OG2-C# (C3-1)
2	D	WH	OG2-D (C3-2)
3	D♯	WH	OG2-D♯ (C3-3)
4	E	WH	OG2-E (C3-4)
5	F	WH	OG2-F (C3-5)
6	F♯	WH	OG2-F♯ (C3-6)
7	G	WH	OG2-G (C3-7)
8	G♯	WH	OG2-G♯ (C3-8)
9	A	WH	OG2-A (C3-9)
10	A♯	WH	OG2-A♯ (C3-10)

C5

Pin No.	Pin Name	Wire Color	Destination
1	Si	S GR	CPB-OSO (C1-4)
2	Vss	S GR	S
3	KC1	S BR	PG-KC1 (C5-8)
4	Vss	S BR	S
5	KC2	S RE	PG-KC2 (C5-6)
6	Vss	S RE	S
7	KC3	S OR	PG-KC3 (C5-4)
8	Vss	S OR	S
9	KC4	S YE	PG-KC4 (C5-2)
10	Vss	S YE	S

C6

Pin No.	Pin Name	Wire Color	Destination
1	Si	WH	
2	Vss	WH	OG2-Vss (C1-2)
3	KC1	WH	OG2-KC1 (C1-3)
4	Vss	WH	OG2-Vss (C1-4)
5	KC2	WH	OG2-KC2 (C1-5)
6	Vss	WH	OG2-Vss (C1-6)
7	KC3	WH	OG2-KC3 (C1-7)
8	Vss	WH	OG2-Vss (C1-8)
9	KC4	WH	OG2-KC4 (C1-9)
10	Vss	WH	OG2-Vss (C1-10)

C7

Pin No.	Pin Name	Wire Color	Destination
1	NC	WH	
2	NC	WH	
3	NC	WH	
4	+15A	WH	OG2- +15A (C4-4)
5	+15A	WH	OG2- +15A (C4-5)
6	−15A	WH	OG2- −15A (C4-6)
7	−15A	WH	OG2- −15A (C4-7)
8	E	WH	OG2-E (C4-8)
9	E	WH	OG2-E (C4-9)
10	E	WH	OG2-E (C4-10)

C8

Pin No.	Pin Name	Wire Color	Destination
1	+15A	BR	DC- +15A (C1-1)
2	+15A	BR	PG- +15A (C10-4)
3	−15A	YE	DC- −15A (C1-2)
4	−15A	YE	PG- −15A (C10-7)
5	E	–	–
6	E	BL	PG-E (C10-1)
7	E	BL	DC-E (C4-3)

C9

Pin No.	Pin Name	Wire Color	Destination
1	UL	–	–
2	Vss	–	–
3	KC4	S YE	KC-KC4 (C5-8)
4	Vss	S YE	S
5	KC3	S OR	KC-KC3 (C5-6)
6	Vss	S OR	S
7	KC2	S RE	KC-KC2 (C5-2)
8	Vss	S RE	S
9	KC1	S BR	KC-KC1 (C5-4)
10	Vss	S BR	S

C10

Pin No.	Pin Name	Wire Color	Destination
1	2 2/3'	S GR	CPB-2 2/3' (C6-6)
2	E	S GR	S
3	4'	S BE	CPB-4' (C6-3)
4	E	S BE	S
5	5 1/3'	S VI	CPB-5 1/3' (C8-5)
6	E	S VI	S
7	8'	S GY	CPB-8' (C8-3)
8	E	S GY	S
9	16'	S WH	CPB-16' (C8-1)
10	E	S WH	S

C11

Pin No.	Pin Name	Wire Color	Destination
1	1'	S BR	CPB-1' (C12-7)
2	E	S BR	S
3	1 1/3'	S RE	CPB-1 1/3' (C12-5)
4	E	S RE	S
5	1 3/5'	S OR	CPB-1 3/5' (C8-9)
6	E	S OR	S
7	2'	S YE	CPB-2' (C12-1)
8	E	S YE	S

C12

Pin No.	Pin Name	Wire Color	Destination
1	ϕM	S VI	CPB-ϕM (C1-8)
2	Vss	S VI	S
3	ϕM	S VI	KC-ϕM (C5-10)
4	Vss	S VI	S
5	ϕM	S VI	PG-ϕM (C6-2)
6	Vss	S VI	S
7	IC	GG	PG-IC (C6-3)
8	IC	GG	KC-IC (C4-1)
9	IC	GG	CPC-IC (C3-2)
10	IC	GG	CPA-IC (C7-1)

C13

Pin No.	Pin Name	Wire Color	Destination
1	TR	RE	JK-TRO (C4-2)
2	TR	RE	CPB-TR (C11-5)
3	TR	–	–
4	TS	BE	CPB-TS (C7-2)
5	E	BL	PC-E (C2)
6	+15A	BR	PC- +15A (C-4)
7	+S	S WH	PC- +S (C-3)
8	E	S WH	S
9	−S	S GG	PC- −S (C-1)
10	E	S GG	S

C15

Pin No.	Pin Name	Wire Color	Destination
1	PEL	BE	PN1-PEL (C2-4)
2	PTL	VI	PN1-PTL (C1-4)
3	OEL	PK	PN1-OEL (C1-8)
4	OTL	WH	PN1-OTL (C1-6)
5	PT	BR	CPA-PT (C9-3)
6	OE	GG	CPA-LOE (C9-5)
7	OT	SB	CPA-LOT (C9-6)
8	PE	RE	CPA-PE (C9-4)

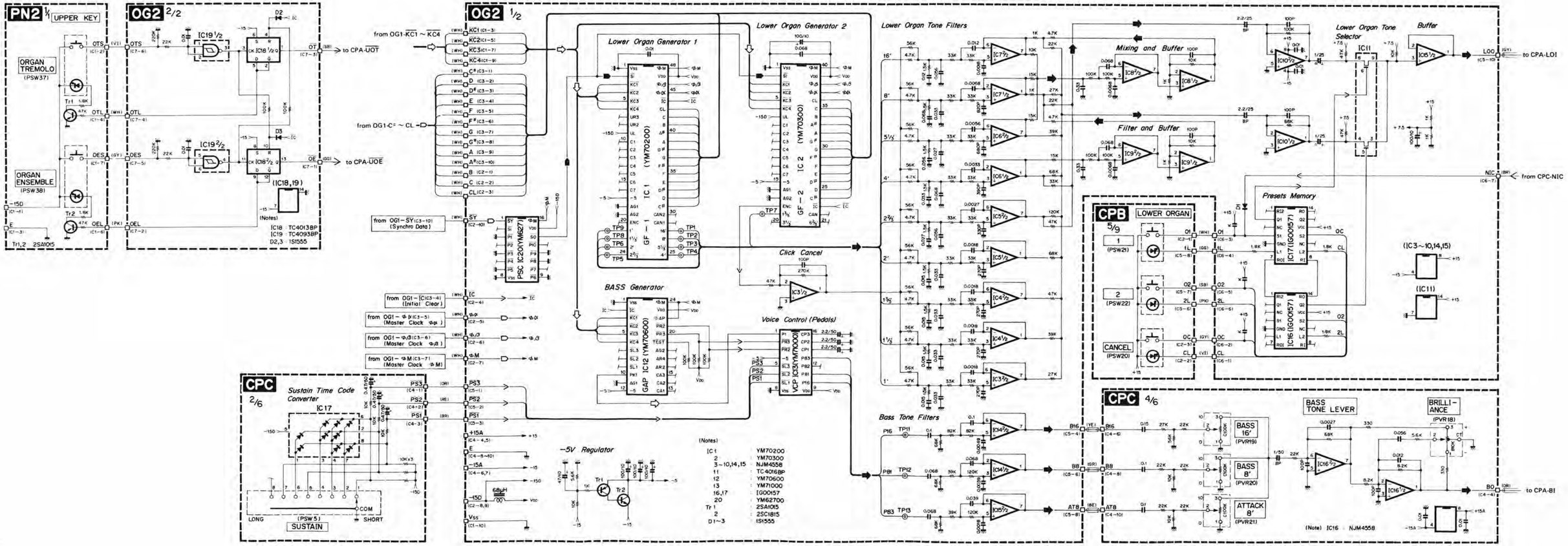
C16

Pin No.	Pin Name	Wire Color	Destination
1	E	BL	PN2-E (C1-3)
2	PES	OR	PN1-PES (C2-5)
3	OTS	BR	PN1-OTS (C1-5)
4	OES	GY	PN1-OES (C1-7)
5	PTS	BE	PN1-PTS (C1-3)

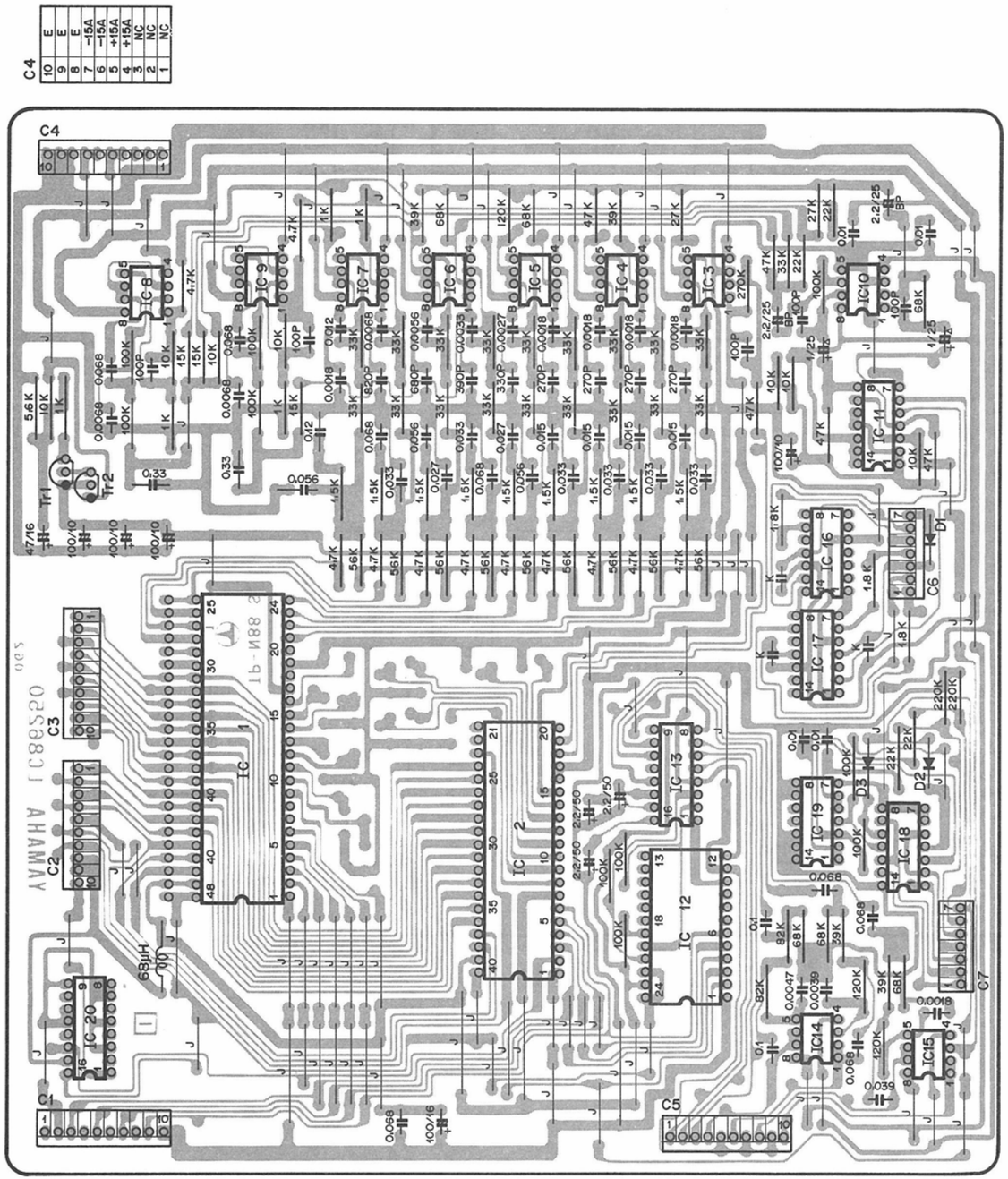
Notes)

1. Circuit Board : LC86240
2. IC, LSI
   - IC1 : YM62200 (TGC)
   - IC2 : YM70200 (GF-1)
   - IC3 : YM70300 (GF-2)
   - IC4 ~ 11 : NJM4558DV (OP-Amp)
   - IC12 : TA7505M (OP-Amp)
   - IC14 ~ 15 : TC4013BP (D Flip-Flop)
   - IC16 : TC4093BP (2 IN NAND Schmitt Trigger)
   - IC17 ~ 19 : TC4050BP (Buffer)
3. Transistors
   - Tr1, 4, 5, 7, 9, 11 : 2SC752 (Y)
   - Tr2, 3 : 2SA1164 (Y)
   - Tr6, 8, 10 : 2SA1164 (GR)
   - Tr12, 16 20 ~ 30 : 2SA1015 (O, Y)
   - Tr13 ~ 15, 17 : 2SC1815 (O, Y)
4. Field Effect Transistor
   - FET1 : 2SK30A (Y)
5. Diodes
   - D1 ~ 10 : 1S1555
6. Capacitor
   - (○) marked : Polystyrene Capacitor
7. Coil
   - 68μH : Choke Coil
   - 125μH : OSC Coil
8. Resistor
   - Ⓕ marked : Metal Film Resistor (±1%)

OG2 Circuit Diagram



OG2 Circuit Board & Wiring



View from the component side of the circuit board

C1

Pin No.	Pin Name	Wire Color	Destination
1	NC	WH	
2	Vss	WH	OG1-Vss (C6-2)
3	KC1	WH	OG1-KC1 (C6-3)
4	Vss	WH	OGL-Vss (C6-4)
5	KC2	WH	OG1-KC2 (C6-5)
6	Vss	WH	OG1-Vss (C6-6)
7	KC3	WH	OG1-KC3 (C6-7)
8	Vss	WH	OG1-Vss (C6-8)
9	KC4	WH	OG1-KC4 (C6-9)
10	Vss	WH	OG1-Vss (C6-10)

C2

Pin No.	Pin Name	Wire Color	Destination
1	B	WH	OG1-B (C3-1)
2	C	WH	OG1-C (C3-2)
3	CL	WH	OG1-CL (C3-3)
4	IC	WH	OG1-IC (C3-4)
5	$\phi\alpha$	WH	OG1-$\phi\alpha$ (C3-5)
6	$\phi\beta$	WH	OG1-$\phi\beta$ (C3-6)
7	ϕM	WH	OG1-ϕM (C3-7)
8	−15D	WH	OG1-−15D (C3-8)
9	−15D	WH	OG1-−15D (C3-9)
10	SY	WH	OG1-SY (C3-10)

C3

Pin No.	Pin Name	Wire Color	Destination
1	C#	WH	OG1-C# (C4-1)
2	D	WH	OG1-D (C4-2)
3	D#	WH	OG1-D# (C4-3)
4	E	WH	OG1-E (C3-4)
5	F	WH	OG1-F (C4-5)
6	F#	WH	OG1-F# (C4-6)
7	G	WH	OG1-G (C4-7)
8	G#	WH	OG1-G# (C4-8)
9	A	WH	OG1-A (C4-9)
10	A#	WH	OG1-A# (C4-10)

C4

Pin No.	Pin Name	Wire Color	Destination
1	NC	WH	
2	NC	WH	
3	NC	WH	
4	+15A	WH	OG1-+15A (C7-4)
5	+15A	WH	OG1-+15A (C7-5)
6	−15A	WH	OG1-−15A (C7-6)
7	−15A	WH	OG1-−15A (C7-7)
8	E	WH	OG1-E (C7-8)
9	E	WH	OG1-E (C7-9)
10	E	WH	OG1-E (C7-10)

C5

Pin No.	Pin Name	Wire Color	Destination
1	PS3	OR	CPC-PS3 (C4-1)
2	PS2	RE	CPC-PS2 (C4-2)
3	PS1	BR	CPC-PS1 (C4-3)
4	B16'	S YE	CPC-B16'(C4-6)
5	E	S YE S	
6	B8'	S GR	CPC-B8'(C4-8)
7	E	S GR S	
8	AT8'	S BE	CPC-AT8'(C4-10)
9	E	S BE S	
10	LOO	S GY	CPA-LOI (C1-5)

C6

Pin No.	Pin Name	Wire Color	Destination
1	CL	VI	CPB-CL (C2-2)
2	OC	GY	CPB-OC (C2-3)
3	O1	WH	CPB-O1 (C2-1)
4	1L	GG	CPB-1L (C5-8)
5	O2	SB	CPB-O2 (C5-7)
6	2L	PK	CPB-2L (C5-6)
7	NIC	BR	CPC-NIC (C6-2)

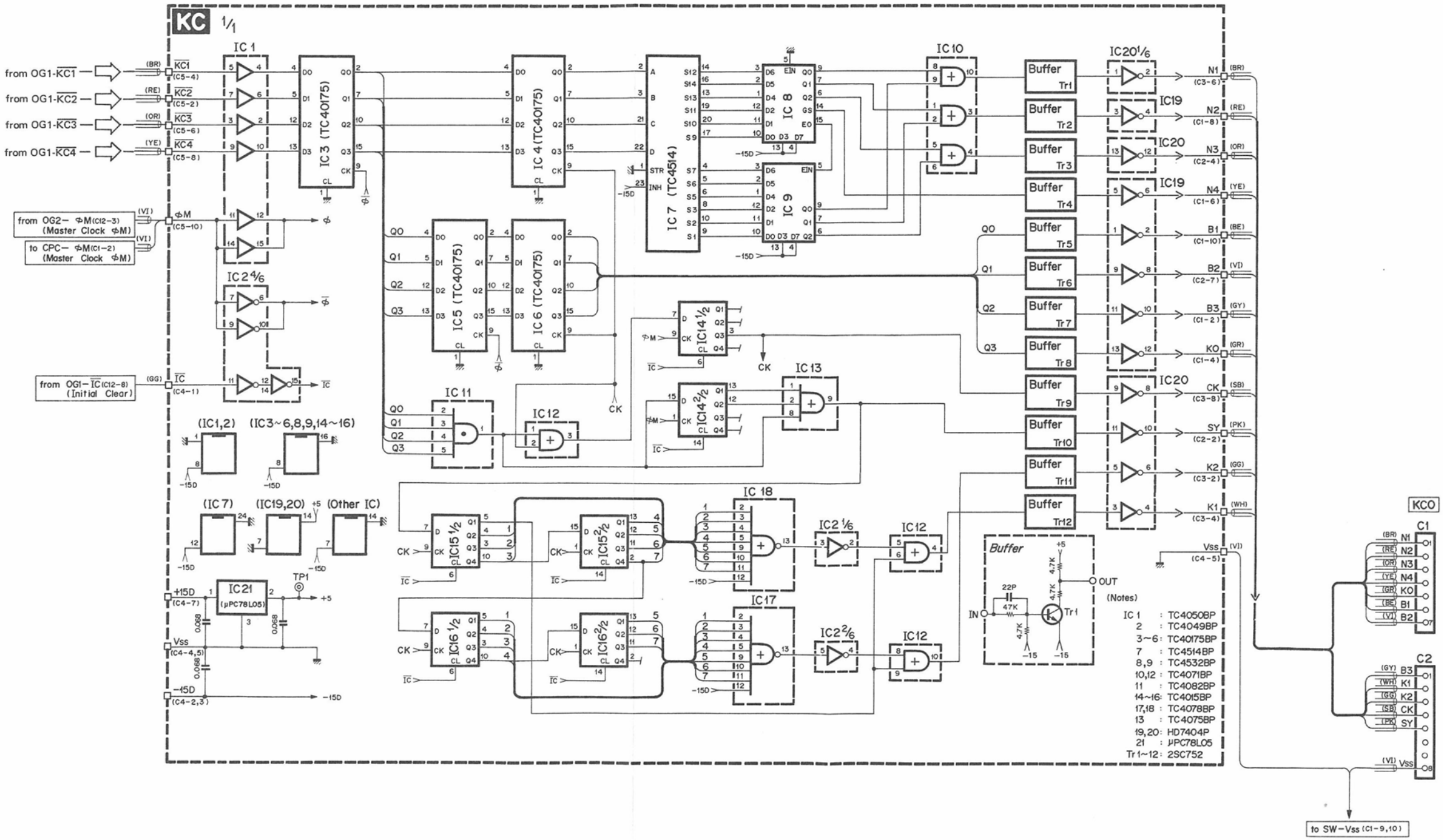
C7

Pin No.	Pin Name	Wire Color	Destination
1	OE	GG	CPA-UOE (C9-2)
2	OEL	PK	PN2-OEL (C1-6)
3	OT	SB	CPA-UOT (C9-1)
4	OTL	WH	PN2-OTL (C1-4)
5	OES	GY	PN2-OES (C1-7)
6	OTS	VI	PN2-OTS (C1-2)
7	IC	–	–

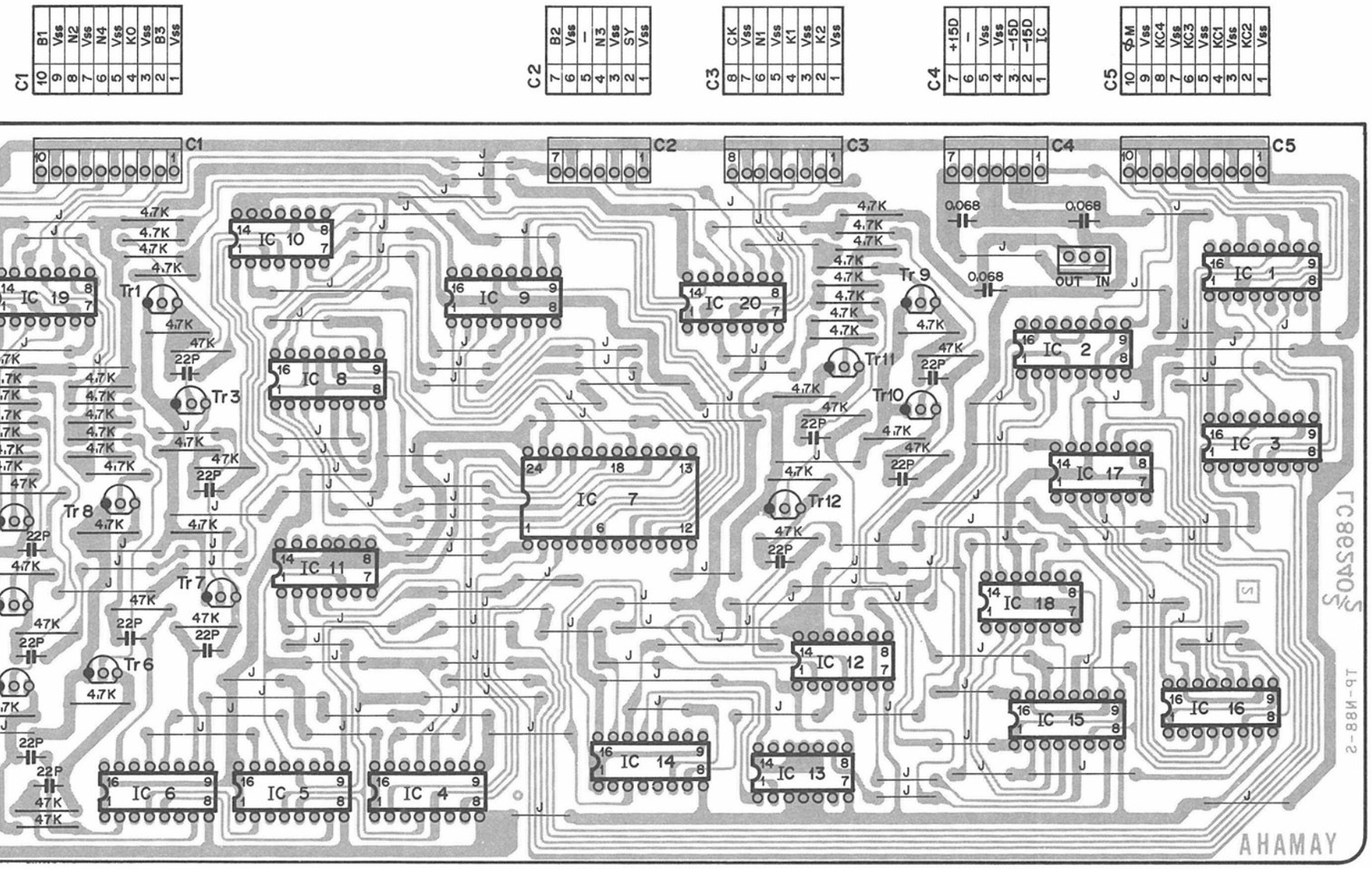
(Notes)

1. Circuit Board : LC86250 1
2. IC, LSI
   - IC1 : YM70200 (GF-1)
   - IC2 : YM70300 (GF-2)
   - IC3 ~ 10, 14, 15 : NJM4558DV (OP-Amp)
   - IC11 : TC4016BP (Analog SW)
   - IC12 : YM70600 (GAP)
   - IC13 : YM71000 (VCP)
   - IC16, 17 : iG00157 (SW Memory)
   - IC18 : TC4013BP ("D" Flip-Flop)
   - IC19 : TC4093BP (2 IN NAND Schmitt Trigger)
   - IC20 : YM62700 (PSC)
3. Transistors
   - Tr1 : 2SA1015 (O, Y)
   - Tr2 : 2SC1815 (O, Y)
4. Diodes
   - D1 ~ D3 : 1S1555
5. Capacitor
   - (K) marked : Ceramic Capacitor 1000P

KC Circuit Diagram



KC Circuit Board & Wiring



View from the component side of the circuit board

C1

Pin No.	Pin Name	Wire Color	Destination
1	Vss	S GY S	
2	B3	S GY	KCO-B3 (C2-1)
3	Vss	S GR S	
4	KO	S GR	KCO-KO (C1-5)
5	Vss	S YE S	
6	N4	S YE	KCO-N4 (C1-4)
7	Vss	S RE S	
8	N2	S RE	KCO-N2 (C1-2)
9	Vss	S BE S	
10	B1	S BE	KCO-B1 (C1-6)

C2

Pin No.	Pin Name	Wire Color	Destination
1	Vss	S PK S	
2	SY	S PK	KCO-SY (C2-5)
3	Vss	S OR S	
4	N3	S OR	KCO-N3 (C1-4)
5	—	—	—
6	Vss	S VI S	
7	B2	S VI	KCO-B2 (C1-7)

C3

Pin No.	Pin Name	Wire Color	Destination
1	Vss	S GG S	
2	K2	S GG	KCO-K2 (C2-3)
3	Vss	S WH S	
4	K1	S WH	KCO-K1 (C2-2)
5	Vss	S BR S	
6	N1	S BR	KCO-N1 (C1-1)
7	Vss	S SB S	
8	CK	S SB	KCO-CK (C2-4)

C4

Pin No.	Pin Name	Wire Color	Destination
1	IC	GG	OG1-IC (C12-8)
2	–15D	YE	OG1- –15D (C1-6)
3	–15D	–	–
4	Vss	VI	PG-Vss (C7-5)
5	Vss	VI	SW-Vss (C1-10)
6	–	–	–
7	+15D	BR	OG1-+15D (C2-2)

C5

Pin No.	Pin Name	Wire Color	Destination
1	Vss	S RE S	
2	KC2	S RE	OG1-KC2 (C9-7)
3	Vss	S BR S	
4	KC1	S BR	OG1-KC1 (C9-9)
5	Vss	S OR S	
6	KC3	S OR	OG1-KC3 (C9-5)
7	Vss	S YE S	
8	KC4	S YE	OG1-KC4 (C9-3)
9	Vss	S VI S	
10	ϕM	S VI	OG1: ϕM (C12-3) CPC: ϕM (C1-2)

C1

Pin No.	Pin Name	Wire Color	Destination
1	N1	S BR	KC-N1 (C3-6)
2	N2	S RE	KC-N2 (C1-8)
3	N3	S OR	KC-N3 (C2-4)
4	N4	S YE	KC-N4 (C1-6)
5	KO	S GR	KC-KO (C1-4)
6	B1	S BE	KC-B1 (C1-10)
7	B2	S VI	KC-B2 (C2-7)

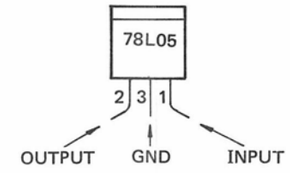
C2

Pin No.	Pin Name	Wire Color	Destination
1	B3	S GY	KC-B3 (C1-2)
2	K1	S WH	KC-K1 (C3-4)
3	K2	S GG	KC-K2 (C3-2)
4	CK	S SB	KC-CK (C3-8)
5	SY	S PK	KC-SY (C2-2)
6	–	–	–
7	–	–	–
8	Vss	VI	SW-Vss (C1-9)

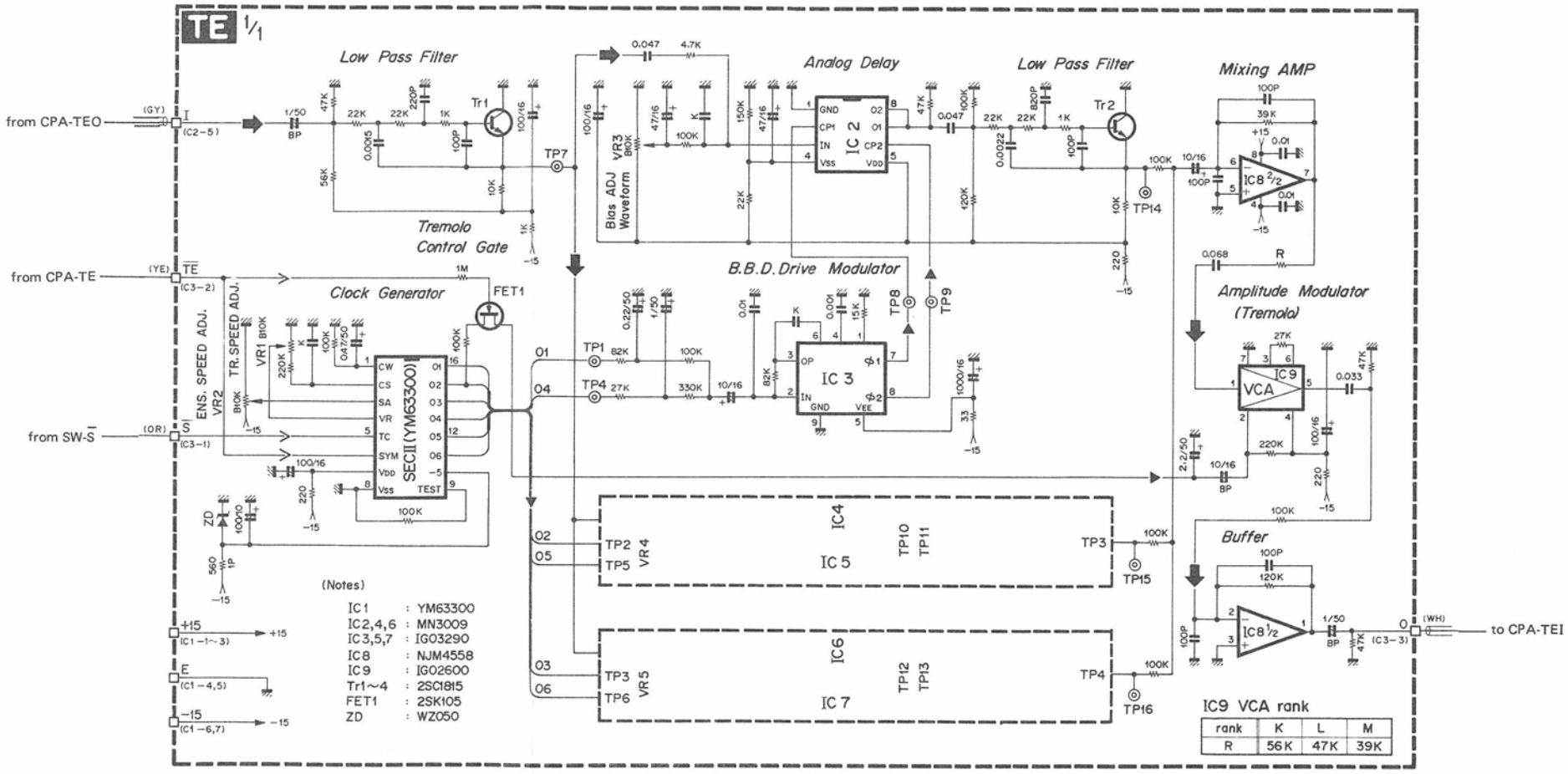
(Key Code Section)

1. Integrated Circuits
   - IC1 : TC4050BP (Buffer)
   - IC2 : TC4049BP (Invertor)
   - IC3 ~ 6 : TC40175BP ("D" Flip-Flop)
   - IC7 : TC4514BP (Decoder)
   - IC8, 9 : TC4532BP (Encoder)
   - IC10, 12 : TC4071BP (2 IN OR)
   - IC11 : TC4082BP (4 IN AND)
   - IC13 : TC4075BP (3 IN OR)
   - IC14 ~ 16 : TC4015BP (Shift Register)
   - IC17, 18 : TC4078BP (8 IN NOR)
   - IC19, 20 : HD7404P (Inverter-TTL)
   - IC21* : μPC78L05 (+5V Regulator)
2. Transistors
   - Tr1 ~ 12 : 2SC752 (Y)

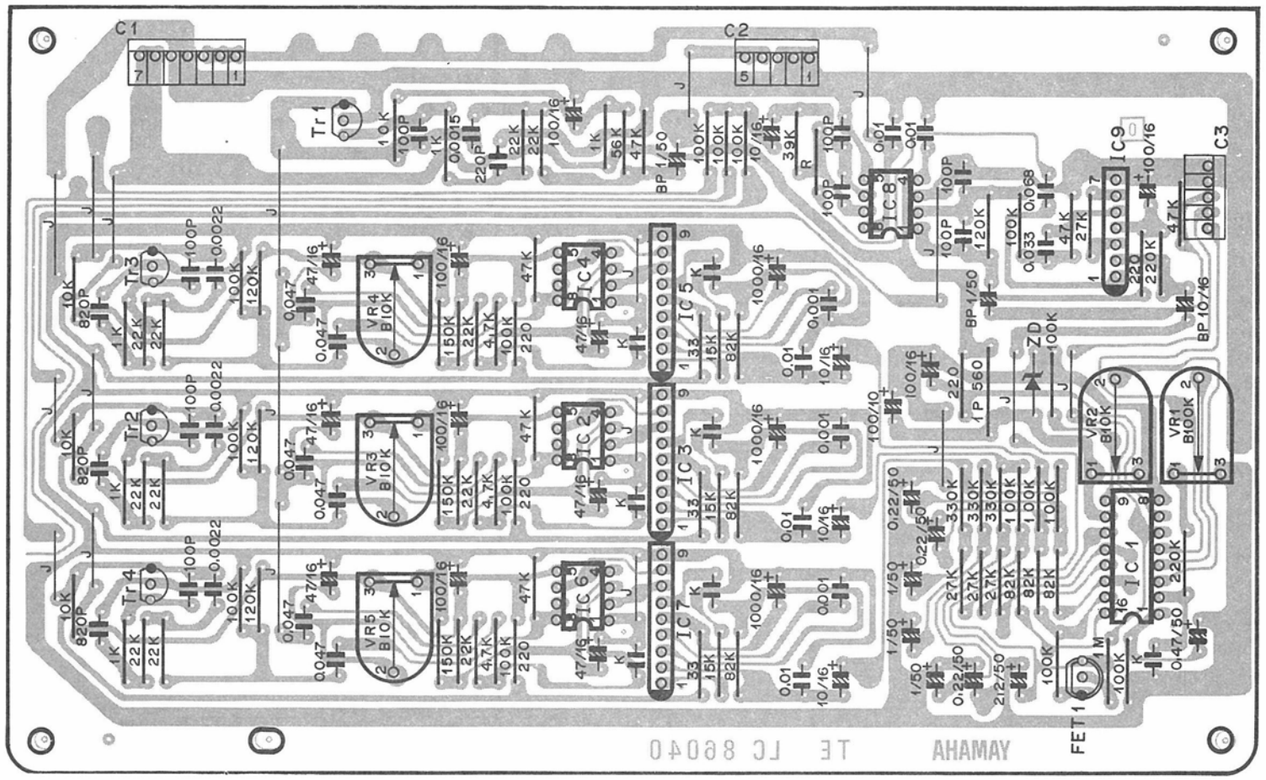
* μPC78L05



TE Circuit Diagram



TE Circuit Board & Wiring



View from the component side of the circuit board

C1

Pin No.	Pin Name	Wire Color	Destination
1	+15A	BR	TC-+15A (C1-5)
2	+15A	BR	DC-+15A (C4-1)
3	+15A	–	–
4	E	BL	DC-E (C4-3)
5	E	BL	TE-E (C2-1)
6	−15A	YE	DC-−15A (C4-2)
7	−15A	YE	TC-−15A (C1-4)

C2

Pin No.	Pin Name	Wire Color	Destination
1	E	BL	TE-E (C1-5)
2	E	BL	SE1
3	E	S GY S	
4	I	–	–
5	I	S GY	CPA-TEO (C3-8)

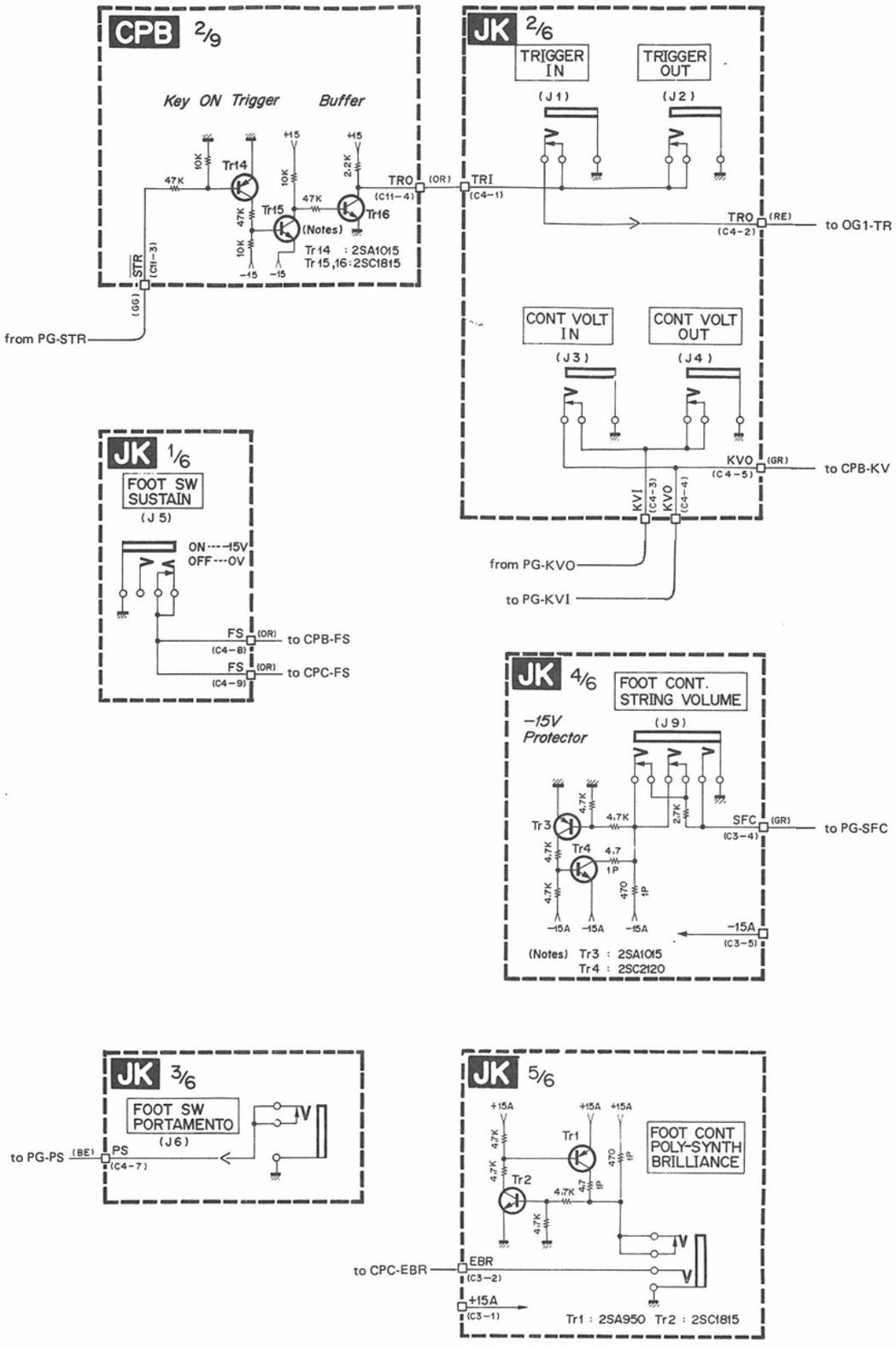
C3

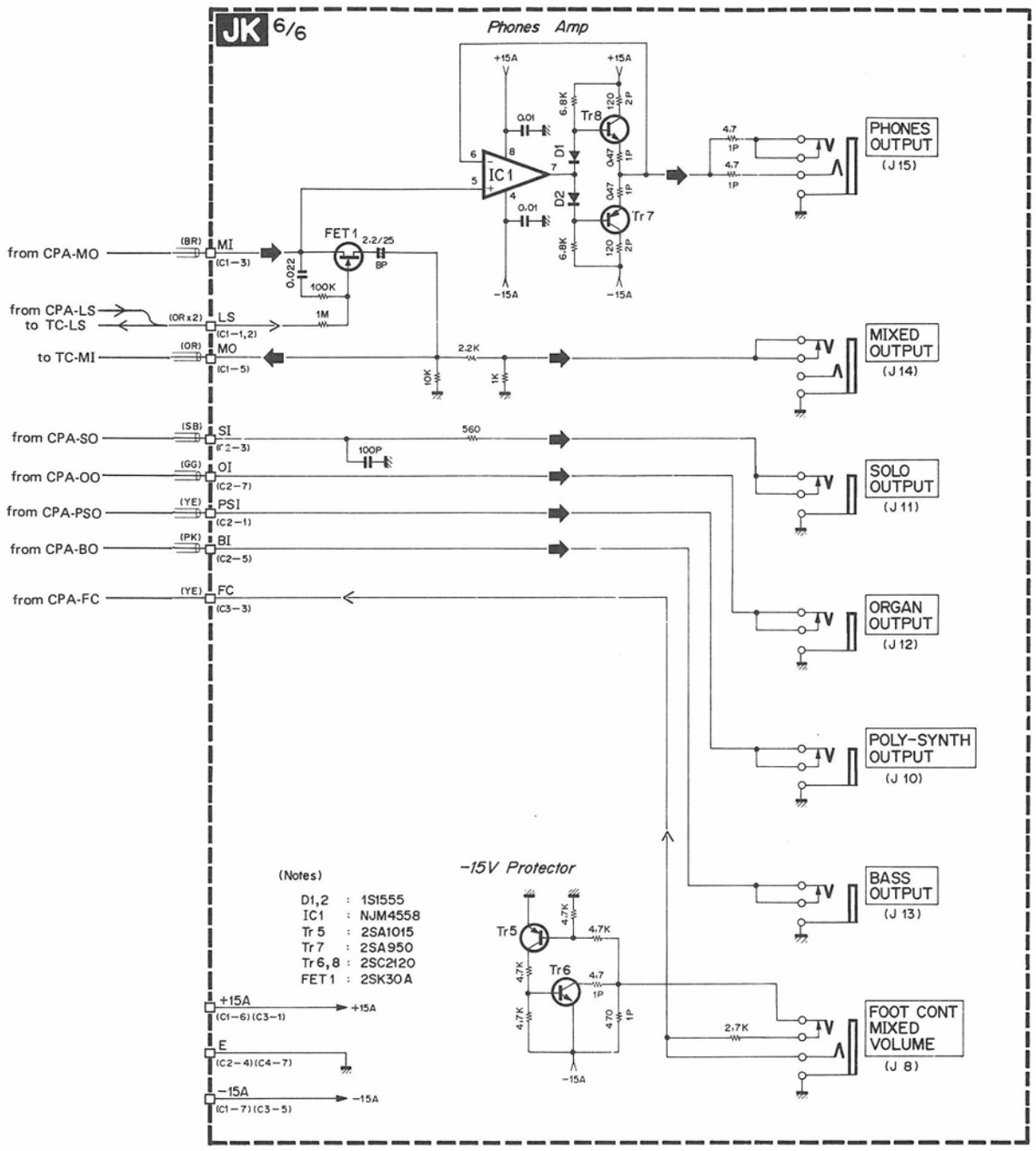
Pin No.	Pin Name	Wire Color	Destination
1	S	OR	SW-S (C1-6)
2	T/E	YE	CPA-T/E (C9-8)
3	O	S WH	CPA-TEI (C6-6)
4	E	S WH S	
5	E	BL	TC-E (C1-10)

Note)
1. Circuit Board : LC86040
2. Transistor
   Tr1 ~ 4 : 2SC1815 (O, Y)
3. FET
   FET1 : 2SK105F
4. IC
   IC1 : YM63300 (SECII)
   IC2, 4, 6 : MN3009 (BBD)
   IC3, 5, 7 : iG03290 (BBD Driver)
   IC8 : NJM4558DV (OP Amp)
   IC9 : iG02600 (VCA)
   iG02590 (VCA)
5. Diode
   ZD : WZ050
6. Capacitor
   K mark : 1000P
7. IC9 (iG02660, iG02590)

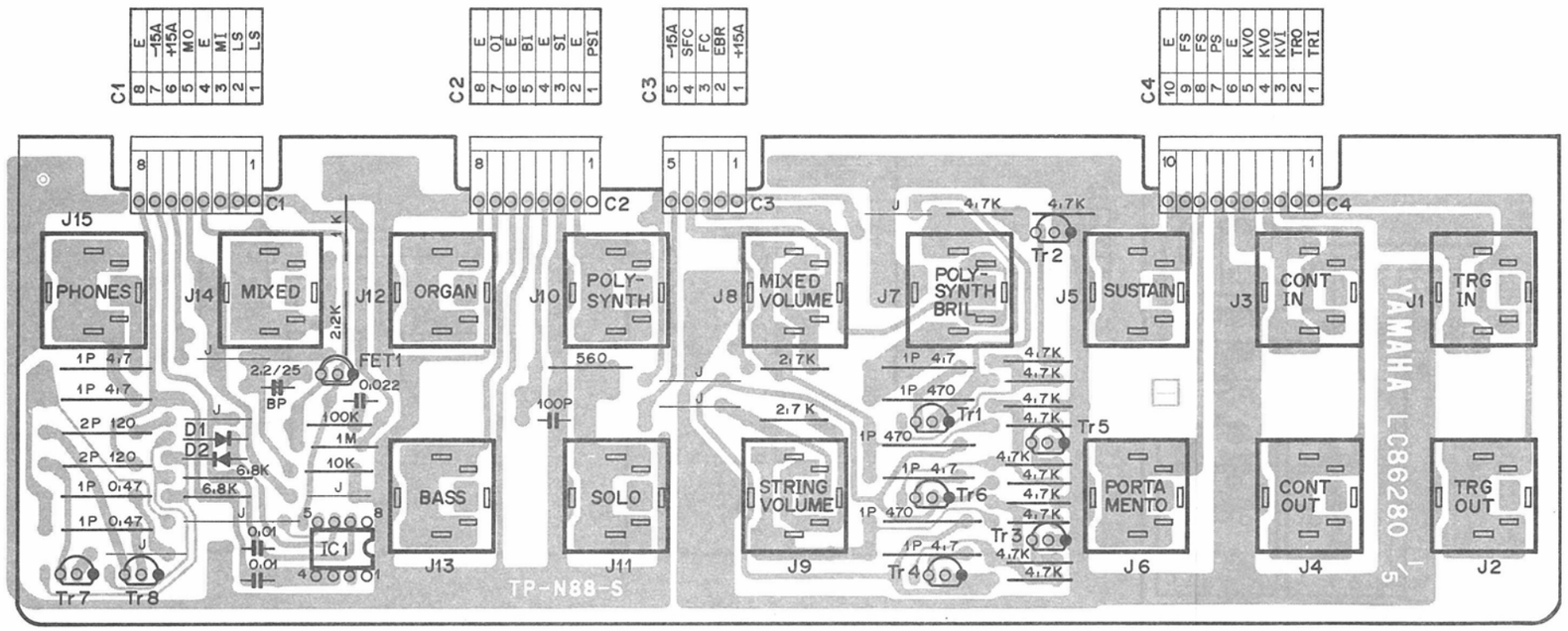
Rank	K	L	M
R	56K	47K	39K

JK Circuit Diagram





JK Circuit Board & Wiring



View from the printed pattern side of the circuit board

C1

Pin No.	Pin Name	Wire Color	Destination
1	LS	OR	CPA-LS (C3-5)
2	LS	OR	TC-LS (C1-1)
3	MI	S BR	CPA-MO (C3-1)
4	E	S OR S	
5	MO	S OR	TC-MI (C1-7)
6	+15A	BR	DC-+15A (C3-1)
7	–15A	YE	DC- –15A (C3-2)
8	E	BL	CPA-E (C1-1)

C2

Pin No.	Pin Name	Wire Color	Destination
1	PSI	S YE	CPA-PSO (C6-2)
2	E	S YE S	
3	SI	S SB	CPA-SO (C6-8)
4	E	S SB S	
5	BI	S PK	CPA-BO (C6-9)
6	E	S PK S	
7	OI	S GG	CPA-OO (C6-7)
8	E	S GG S	

C3

Pin No.	Pin Name	Wire Color	Destination
1	+15A	BR	CPC-+15A (C6-6)
2	EBR	OR	CPC-EBR (C6-3)
3	FC	YE	CPA-FC (C3-6)
4	SFC	GR	PG-SFC (C11-3)
5	–15A	YE	CPC- –15A (C6-10)

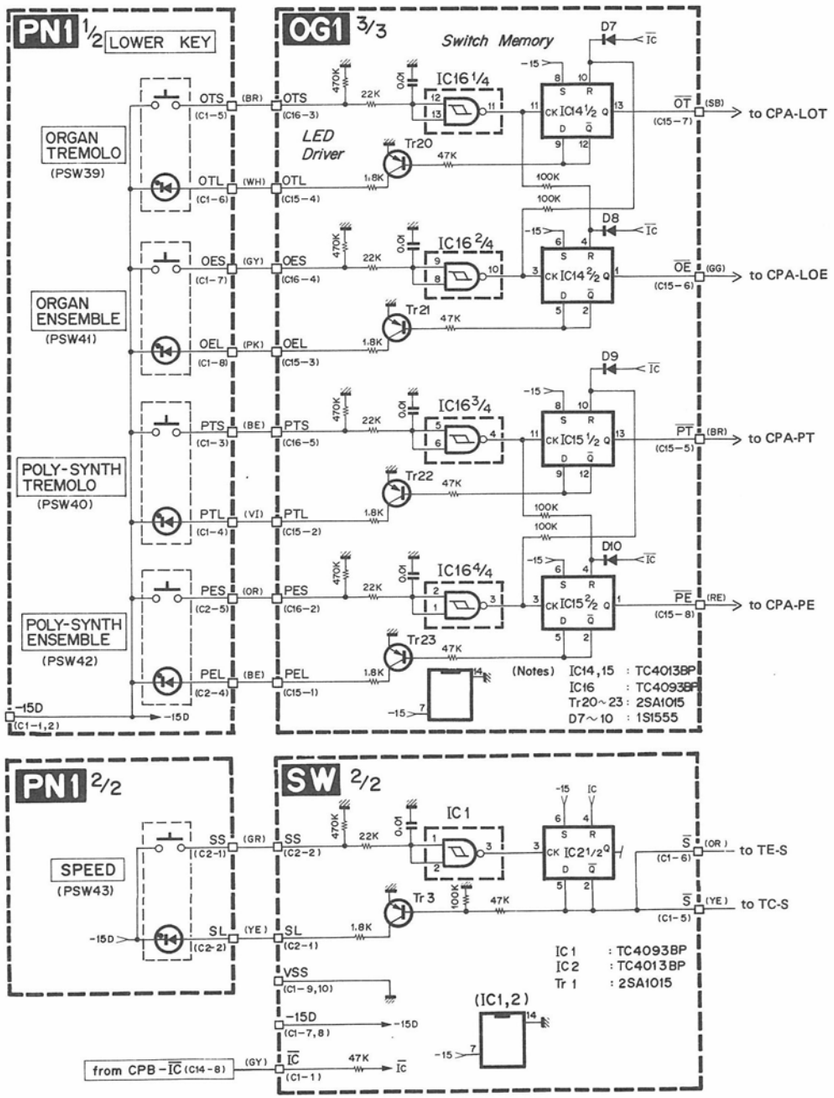
C4

Pin No.	Pin Name	Wire Color	Destination
1	TRI	OR	CPB-TRO (C11-4)
2	TRO	RE	OG1-TR (C13-1)
3	KVI	YE	PG-KVO (C9-3)
4	KVO	GR	PG-KVI (C11-1)
5	KVO	GR	CPB-KV (C10-10)
6	E	–	–
7	PS	BE	PG-PS (C9-6)
8	FS	OR	CPB-FS (C1-3)
9	FS	OR	CPC-FS (C1-10)
10	E	BL	CPC-E (C6-8)

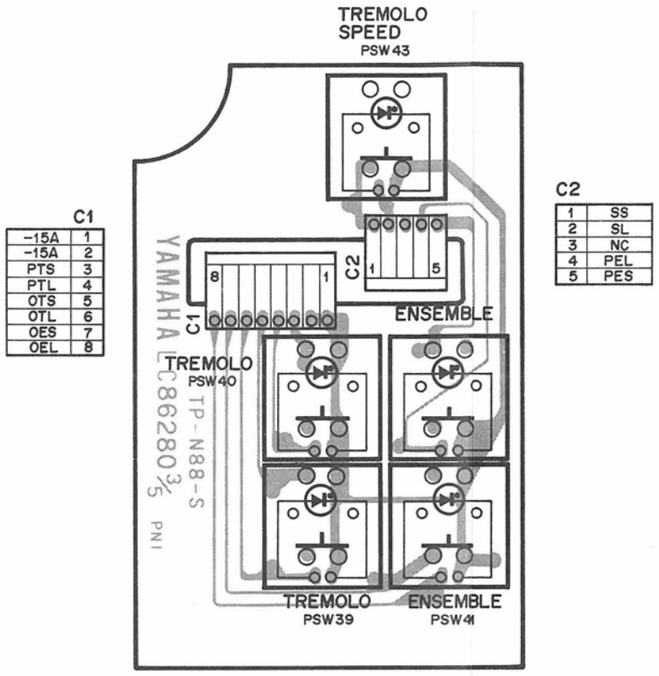
(Notes)

1. Circuit Board : LC86280 1 -1/5
2. IC
   IC1 : NJM4558DV (OP-Amp)
3. Transistor
   Tr1, 7 : 2SA950 (Y)
   Tr2 : 2SC1815 (O, Y)
   Tr3, 5 : 2SA1015 (O, Y)
   Tr4, 6, 8 : 2SC2120 (Y)
4. Field Effect Transistor
   FET : 2SK30A (Y)
5. Diodes
   D1, 2 : 1S1555
6. Jack
   J1 ~ 15 : JL2B
7. Resistor
   (*) marked : Metal Oxide Film Resistor

PN1, PN2 Circuit Diagram · Circuit Board & Wiring



KEC-90471-06 ⚠



C1

–15A	1
–15A	2
PTS	3
PTL	4
OTS	5
OTL	6
OES	7
OEL	8

C2

1	SS
2	SL
3	NC
4	PEL
5	PES

View from the printed pattern side of the circuit board

C1

Pin No.	Pin Name	Wire Color	Destination
1	–15A	YE	SW- –15D (C1-7)
2	–15A	YE	PN2- –15A (C1-1)
3	PTS	BE	OG1-PTS (C16-5)
4	PTL	VI	OG1-PTL (C15-2)
5	OTS	BR	OG1-OTS (C16-3)
6	OTL	WH	OG1-OTL (C15-4)
7	OES	GY	OG1-OES (C16-4)
8	OEL	PK	OG1-OEL (C15-3)

C2

Pin No.	Pin Name	Wire Color	Destination
1	SS	GR	SW-SS (C2-2)
2	SL	YE	SW-SL (C2-1)
3	NC	–	–
4	PEL	BE	OG1-PEL (C15-1)
5	PES	OR	OG1-PES (C16-2)

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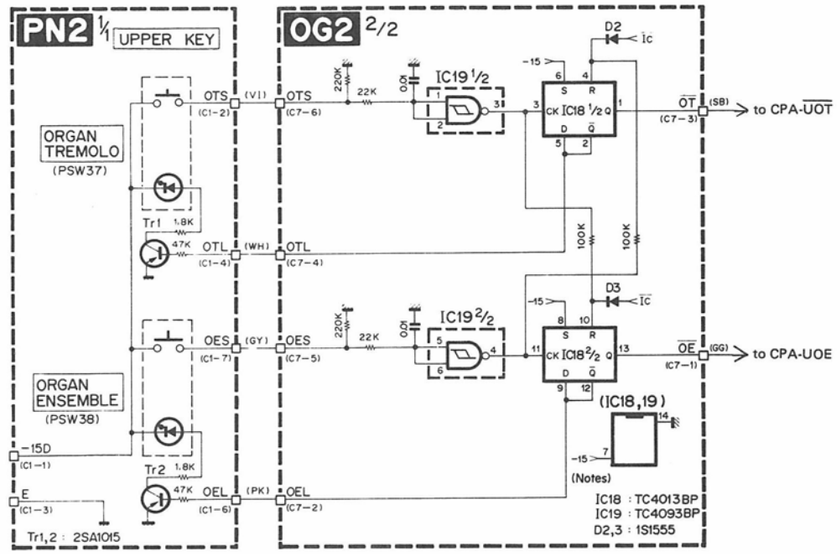
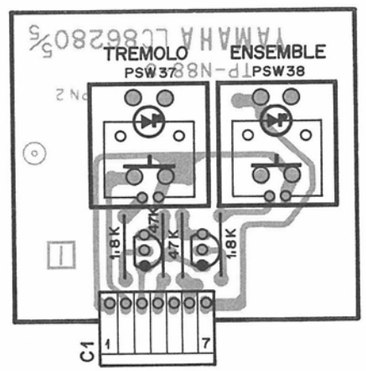


KEC-90471-06 ⚠



C1

Pin No.	Pin Name	Wire Color	Destination
1	–15A	YE	PN1- –15A (C1-2)
2	OTS	VI	OG2-OTS (C7-6)
3	E	BL	OG1-E (C16-1)
4	OTL	WH	OG2-OTL (C7-4)
5	NC	–	
6	OEL	PK	OG2-OEL (C7-2)
7	OES	GY	OG2-OES (C7-5)

View from the printed pattern side of the circuit board

(Notes)
1. Circuit Board : LC86280 [1]-5/5
2. Transistor
   Tr1, 2 : 2SA1015 (O, Y)
3. Push SW with LED
   PSW37, 38 : Gray

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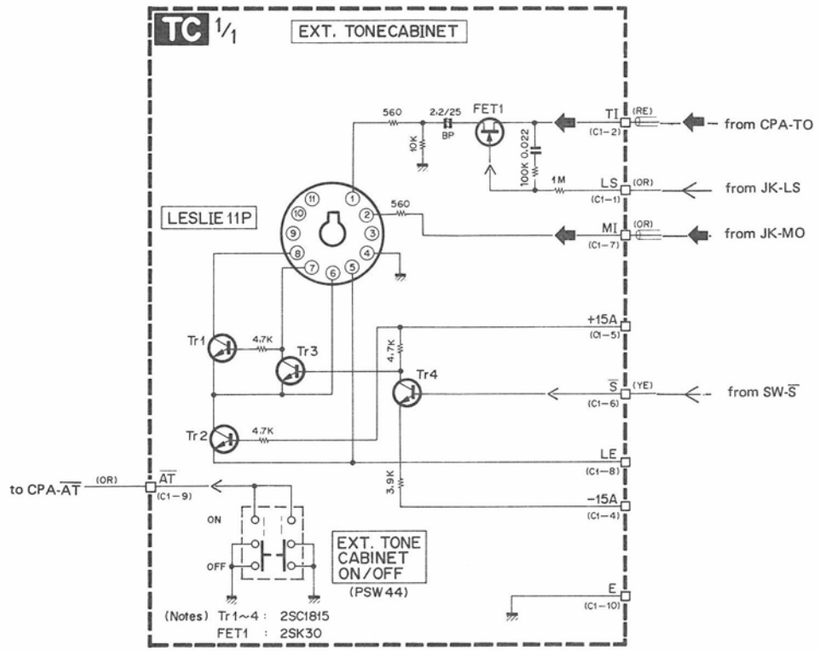
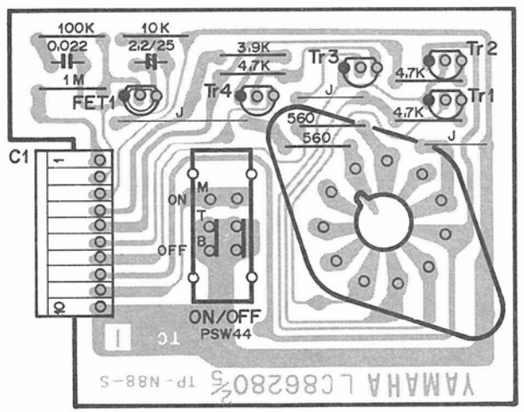
(Notes)
1. Circuit Board : LC86280 [1]-3/5
2. Push SW with LED
   PSW39 ~ 43 : Gray

TC, SW Circuit Diagram · Circuit Board & Wiring



KEC-90471-06 ⚠



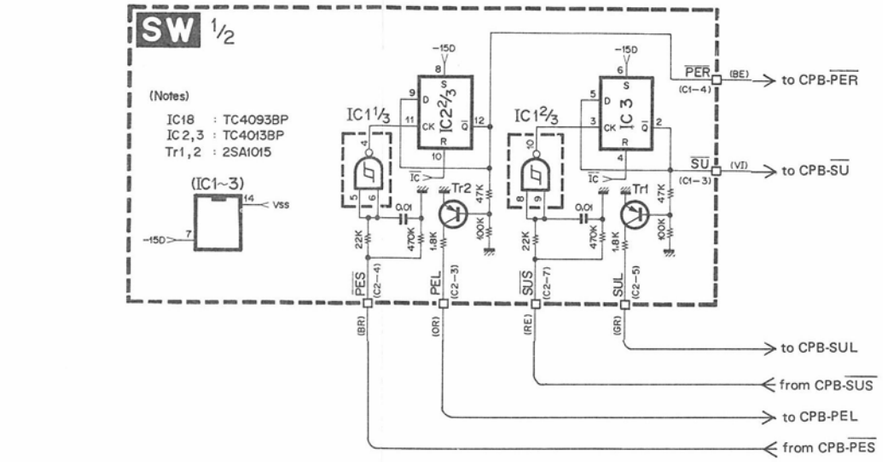
View from the printed pattern side of the circuit board

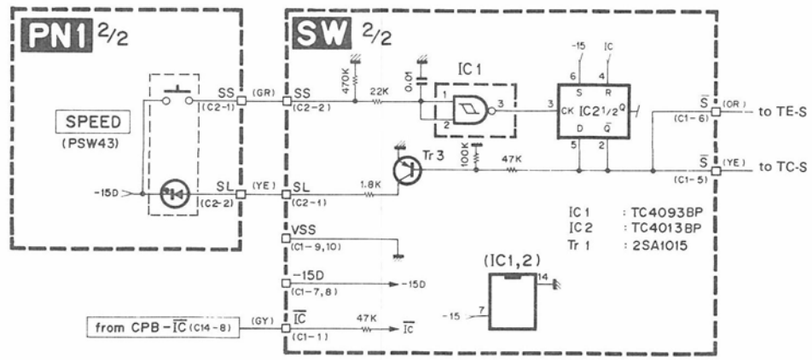
C1

Pin No.	Pin Name	Wire Color	Destination
1	LS	OR	JK-LS (C1-2)
2	TI	S RE	CPA-TO (C3-4)
3	E	S RE S	
4	–15A	YE	TE-–15A (C1-7)
5	+15A	BR	TE-+15A (C1-1)
6	S	YE	SW-S (C1-5)
7	MI	S OR	JK-MO (C1-5)
8	LE	BL	CPA-E (C4-5)
9	AT	OR	CPA-AT (C9-7)
10	E	BL	TE-E (C3-5)

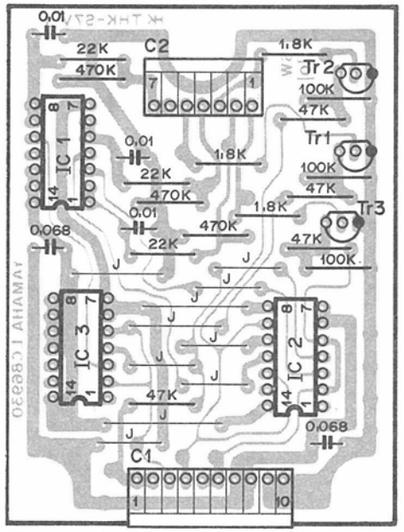
KEP-NA80726 2/5-09 ⚠

(Notes)
1. Circuit Board : LC86280 1 -2/5
2. Transistor
   Tr1 ~ 4 : 2SC1815 (O, Y)
3. Field Effect Transistor
   FET1 : 2SK30A (Y)
4. Slide Switch
   PSW44 : 2 way, 2 contact KA40084





KEC-90503-09



View from the component side of the circuit board

KEP-NA80763-09 ⚠

C1

Pin No.	Pin Name	Wire Color	Destination
1	IC	GY	CPB-IC (C14-8)
2	IC	–	–
3	SU	VI	CPB-SU (C14-7)
4	PER	BE	CPB-DEC (C14-6)
5	S	YE	TC-S (C1-6)
6	S	OR	TE-S (C3-1)
7	–15D	YE	PN1-–15D (C1-1)
8	–15D	YE	CPB-–15D (C14-4)
9	Vss	VI	KCO-Vss (C2-8)
10	Vss	VI	KC-Vss (C4-5)

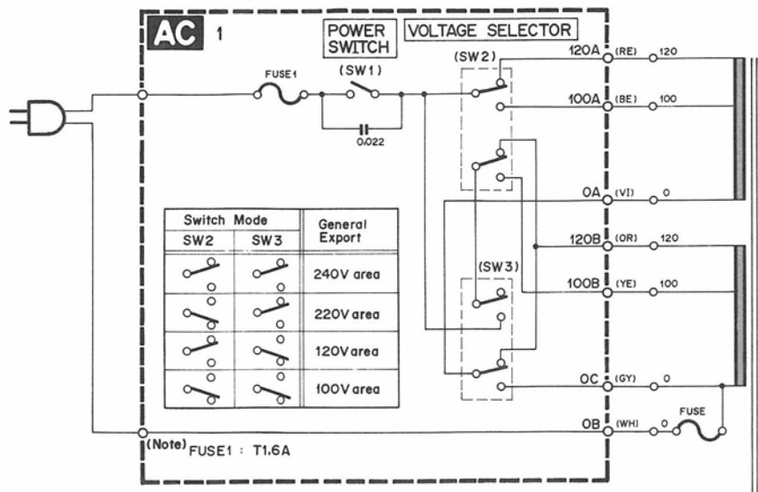
C2

Pin No.	Pin Name	Wire Color	Destination
1	SL	YE	PN1-SL (C2-2)
2	SS	GR	PN1-SS (C2-1)
3	PEL	OR	CPB-DEL (C14-3)
4	PES	BR	CPB-DES (C14-1)
5	SUL	GR	CPB-SUL (C14-5)
6	SUS	–	–
7	SUS	RE	CPB-SUS (C14-2)

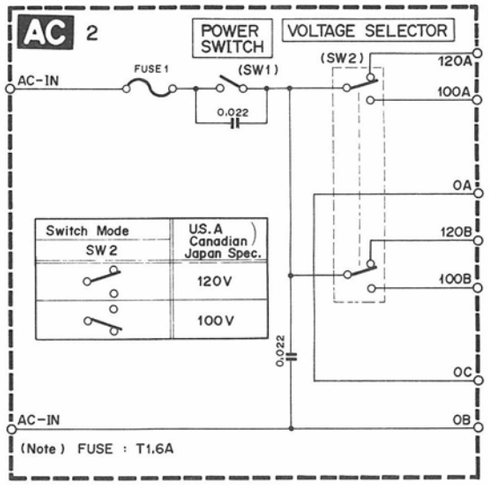
(Notes)
1. Circuit Board : LC86930
2. IC
   IC1 : TC4093BP (2 IN NAND Schmitt Trigger)
   IC2, 3 : TC4013BP ("D" Flip-Flop)
3. Transistors
   Tr1 ~ 3 : 2SA1015 (O, Y)

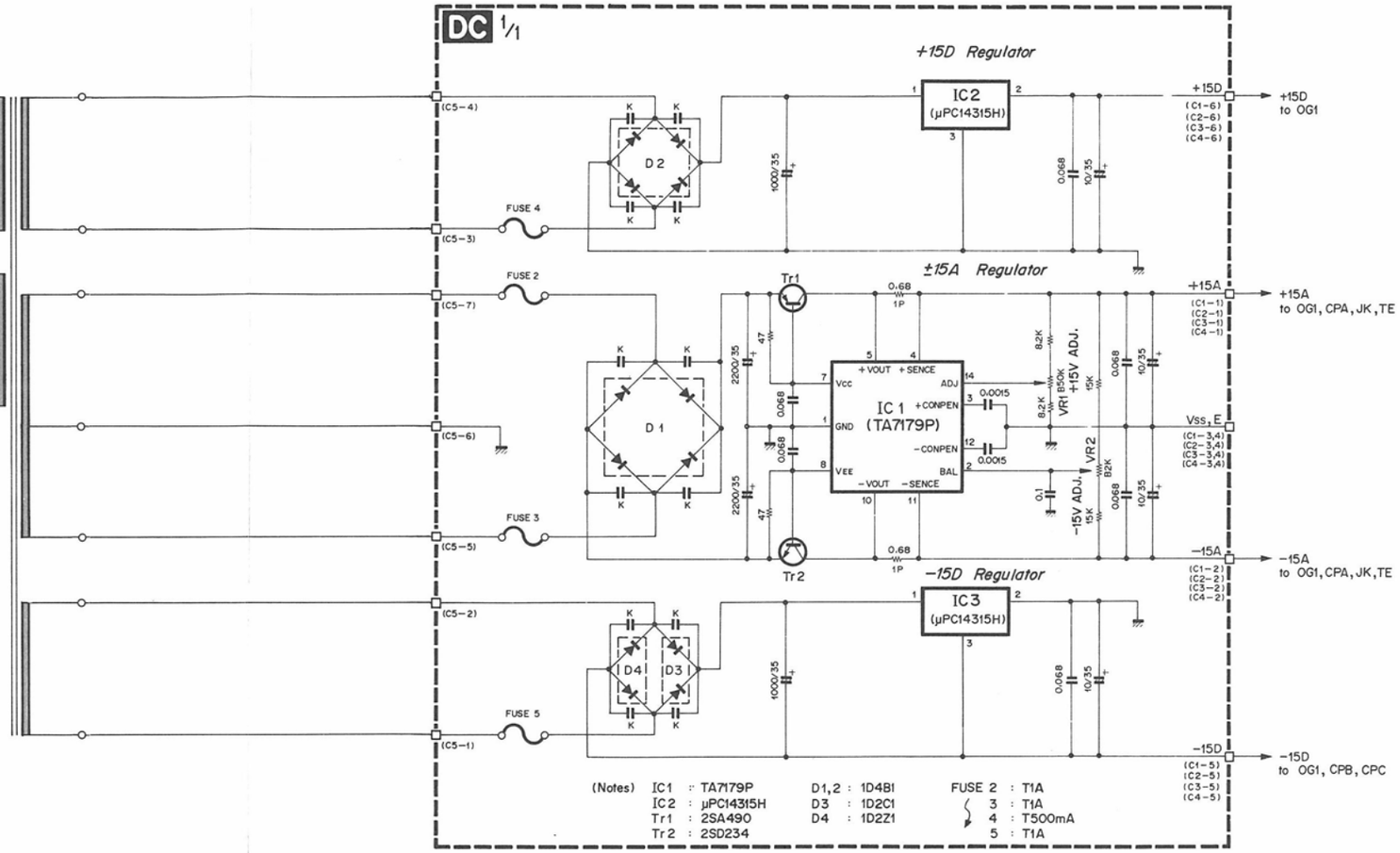
DC, AC Circuit Diagram

General Export Model

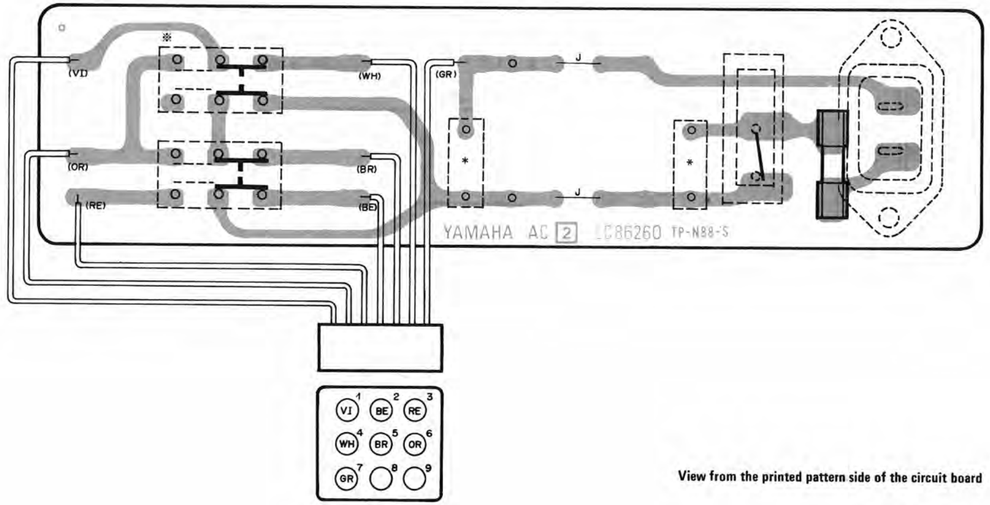


U.S.American
Canadian. Japan } Model





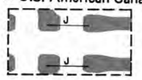
AC (General Export Model)



View from the printed pattern side of the circuit board

KEP-NA80733-07
KEP-NA80734-07
KEP-NA80735-07

※ U.S. American Canadian Model

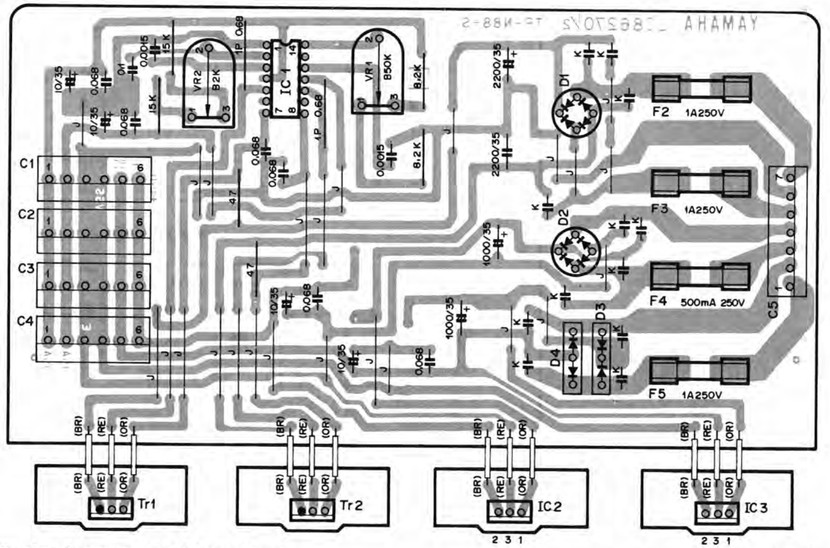


(Notes)
1. Circuit Board : LC86260
2. Capacitor
   (*) marked : Spark Killer Capacitor 250V/0.022μF
3. Fuse

Common Model	NA No.	Fuse
General Export	NA80734	Ⓢ T1.6A 250V
US. American Canadian	NA80733	Ⓤ 1.6A 125V
Japan	NA80735	▽ 1.6A 250V

DC, AC Circuit Board & Wiring

DC



C1

Pin No.	Pin Name	Wire Color	Destination
1	+15A	BR	OG1- +15A (C8-1)
2	−15A	YE	OG1- −15A (C8-3)
3	E	BL	OG1-E (C8-7)
4	Vss	VI	OG1-Vss (C1-1)
5	−15D	YE	OG1- −15D (C1-7)
6	+15D	BR	OG1- +15D (C2-1)

C2

Pin No.	Pin Name	Wire Color	Destination
1	+15A	GR	CPA- +15A (C4-6)
2	−15A	YE	CPA- −15A (C4-1)
3	E	BL	CPA-E (C4-3)
4	Vss	VI	CPB-Vss (C1-10)
5	−15D	YE	CPB- −15D (C1-2)
6	+15D	–	–

C3

Pin No.	Pin Name	Wire Color	Destination
1	+15A	BR	JK- +15A (C1-6)
2	−15A	YE	JK- −15A (C1-7)
3	E	VI	CPA-Vss (C8-1)
4	Vss	VI	CPC-Vss (C1-8)
5	−15D	YE	CPC- −15D (C1-9)
6	+15D	–	–

C4

Pin No.	Pin Name	Wire Color	Destination
1	+15A	BR	TE- +15A (C1-2)
2	−15A	YE	TE- −15A (C1-6)
3	E	BL	TE-E (C1-4)
4	Vss	BL	CPB-EC (C11-1)
5	−15D	–	–
6	+15D	–	–

View from the component side of the circuit board

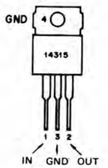
KEP-NA80730-09
KEP-NA80731-09

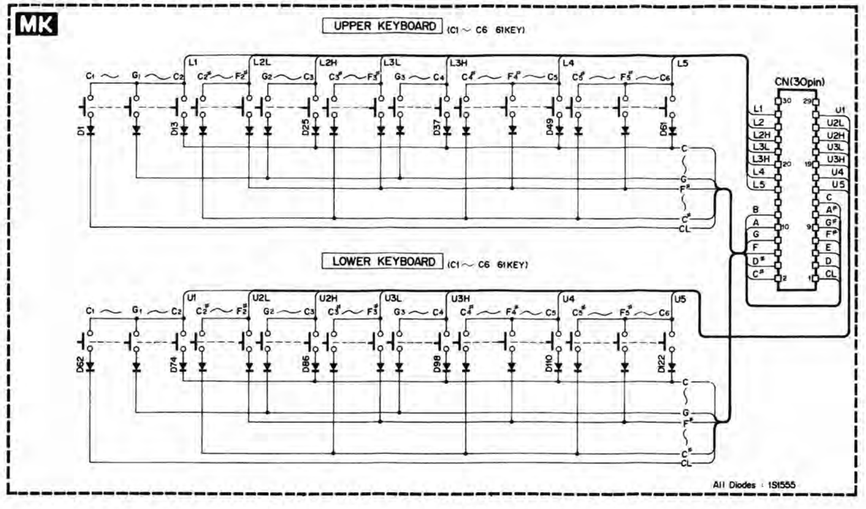
(Notes)
1. Circuit Board : LC86270
2. IC
   IC1 : TA7179P
   IC2, 3 * : μPC14315H
3. Transistor
   Tr1 : 2SA490 (Y)
   Tr2 : 2SD234 (Y)
4. Diodes
   D1, 2 : 1D4B1
   D3 : 1D2C1
   D4 : 1D2Z1
5. Capacitor
   (K) marked : Ceramic Capacitor 1000P
6. Resistor
   1P 0.68 : Metal Oxide Film Resistor
7. Variable Resistor
   Vr1, 2 : V10K
8. Fuse

Common Model	NA No.	F2, F3	F4	F5
US. American Canadian Japan	NA80730	Ⓤ 1A 250V	Ⓤ 500mA 250V	Ⓤ 1A 250V
General Export	NA80731	Ⓢ T 1A 250V	Ⓢ T500mA 250V	Ⓢ T1A 250V

9. Connector
   C1 ~ 4 : 5277-06A LB60397
   C5 : 5277-07A LB60398

*μPC14315 Connection Diagram

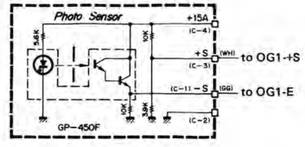




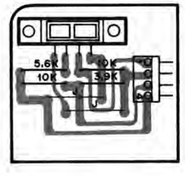
to PG

KEC-90474-06

MK, PC Circuit Diagram · PC Circuit Board



KEC-90505-09 ⚠



Note)
Photo Sensor : GP-450F

C1

Pin No.	Pin Name	Wire Color	Destination
1	-S	S GG	OG1- -S (C13-9)
2	E	BL	OG1-E (C13-5)
3	+S	S WH	OG1-+S (C13-7)
4	+15A	BR	OG1-+15A (C13-6)

KEP-NA80743-09 ⚠

BLOCK	CONTROL	SETTING
OUTPUT	OUTPUT ON/OFF	ON
	MASTER VOLUME	10 (Max.)
	SPLIT VOLUME	0 (Min.)
	SOLO	↓
	LOWER ORGAN	↓
	UPPER ORGAN	↓
	STRING	↓
	POLY-SYNTH	↓
PITCH	TUNE	CENTER
	POLY-SYNTH DETUNE	↓
	SOLO TUNE	↓
VIBRATO (POLY-SYNTH)	DELAY	S
	SPEED	S
	DEPTH	0

BLOCK	CONTROL	SETTING
SOLO SYNTHESIZER	LFO SPEED	S
	PORTAMENTO TIME	S
	GLIDE DEPTH	0 (CENTER)
	VCO	
	FEET	4'
	WAVE	⌐
	PW	0
	LFO/MANUAL/EG	MANUAL
	VCF	
	CUT OFF FREQ.	H
	RESONANCE	L
	MODULATION	0
	EG DEPTH	0
	VCA	
	HOLD/GATE/EG	GATE
	EG	
	ATTACK TIME	S
	DECAY TIME	S
	SUSTAIN LEVEL	10
	RELEASE TIME	S

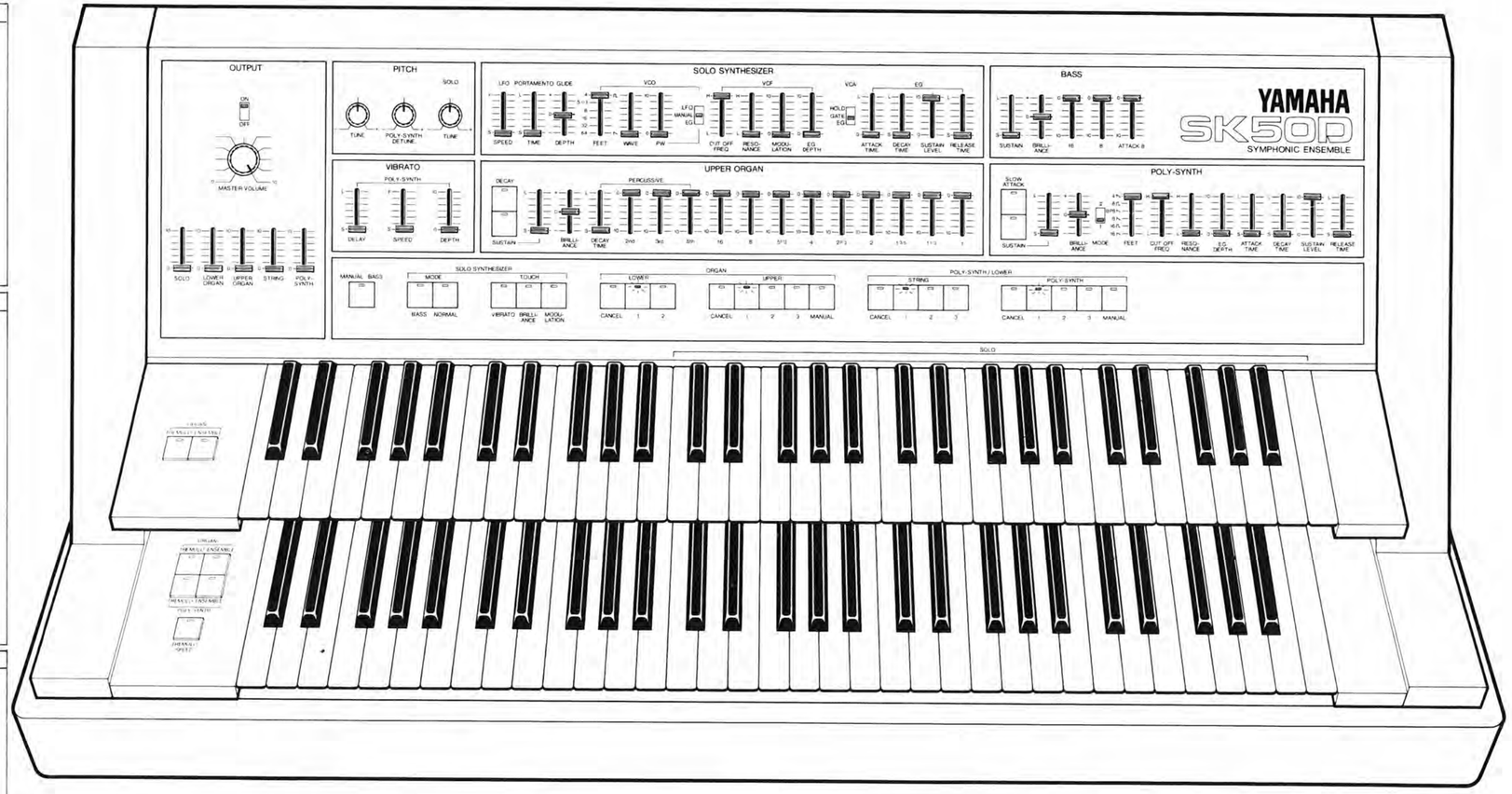
BLOCK	CONTROL	SETTING
UPPER ORGAN	DECAY Switch	OFF (LED OFF)
	SUSTAIN Switch	OFF (LED OFF)
	DECAY / SUSTAIN } Lever	S
	BRILLIANCE	0
	PERCUSSIVE	
	DECAY TIME	S
	2nd	0
	3rd	0
	5th	0
	TONE LEVERS	0
	16'	↓
	8'	↓
	5⅓'	↓
	4'	↓
	2⅔'	↓
	2'	↓
	1⅗'	↓
	1⅓'	↓
	1'	↓
BASS	SUSTAIN	S
	BRILLIANCE	0 (CENTER)
	16'	0
	8'	↓
	ATTACK 8'	↓

BLOCK	CONTROL	SETTING
POLY-SYNTH	SLOW ATTACK	OFF (LED OFF)
	SUSTAIN Switch	OFF (LED OFF)
	SUSTAIN Lever	S
	BRILLIANCE	0 (CENTER)
	MODE I/II	I
	FEET	4'
	CUTOFF FREQ.	H
	RESONANCE	L
	EG DEPTH	0
	ATTACK TIME	S
	DECAY TIME	S
	SUSTAIN LEVEL	10
	RELEASE TIME	S

BLOCK	CONTROL	SETTING
Switch Block SOLO & BASS		
	MANUAL BASS	OFF
	SOLO SYNTHESIZER	
	MODE ..... NORMAL	OFF
	BASS	OFF
	TOUCH	
	VIBRATO	OFF
	BRILLIANCE	OFF
	MODULATION	OFF
Switch Block ORGAN	LOWER	
	CANCEL	
	1	ON (LED ON)
	2	
	UPPER	
	CANCEL	
	1	ON (LED ON)
	2	
	3	
	MANUAL	

BLOCK	CONTROL	SETTING
Switch Block POLY-SYNTH	STRING	
	CANCEL	
	1	ON (LED ON)
	2	
	3	
	POLY-SYNTH	
	CANCEL	
	1	ON (LED ON)
	2	
	3	
	MANUAL	
Switch Block TREMOLO/ ENSEMBLE		(All OFF)
	UPPER ORGAN TREMOLO ENSEMBLE	
	LOWER ORGAN TREMOLO ENSEMBLE	
	POLY-SYNTH TREMOLO ENSEMBLE	
	TREMOLO SPEED	

PANEL SETTING



CHECKS AND ADJUSTMENTS

Before checking or making and adjustment, you must first set-up the panel as shown on page 67, then change panel setting as required to make each adjustment.

Equipment Required

Oscilloscope
AC Voltmeter
Frequency counter
Digital voltmeter

CIRCUIT BOARDS AND FUNCTIONS

Circuit boards	Functions
CPA	Mixing Circuit LINE OUT Control Circuit SOLO SYNTHESIZER & BASS Control Circuit PITCH Circuit DELAY VIBRATO Circuit
CPB	SOLO SYNTHESIZER KEY ON TRIGGER Circuit FEET Switch Circuit LFO Circuit GLIDE Circuit VCF Circuit VCA Circuit EG Circuit TOUCH CONTROL Switch Circuit UPPER ORGAN Mixing Circuit PERCUSSIVE Circuit DECAY/SUSTAIN Circuit BRILLIANCE Circuit PRESET MEMORY & Tone Selector Circuit LOWER ORGAN PRESET MEMORY Circuit STRING PRESET MEMORY Circuit
CPC	POLY-SYNTH VCF Circuit EG VCF Circuit BRILLIANCE Circuit SLOW ATTACK/SUSTAIN Circuit

Circuit boards	Functions
CPC	POLY-SYNTH MODE Switch Circuit PRESET MEMORY Circuit BASS Mixing Circuit BRILLIANCE Circuit SUSTAIN Circuit
PG	KEY ASSIGNER & SPLIT Circuit SOLO SYNTHESIZER KEY VOLTAGE Generator VCO Circuit POLY-SYNTH MASTER CLOCK Circuit Tone Generator Circuit Mixing Circuit STRING Filter & Selector Circuit TRIGGER Detector
OG1	INITIAL CLEAR Circuit ORGAN (UPPER, LOWER) MASTER CLOCK Circuit UPPER ORGAN Tone Generator Circuit Filter & Mixing Circuit TOUCH SENSE Circuit TREMOLO/ENSEMBLE SW MEMORY Circuit
OG2	LOWER ORGAN Tone Generator Circuit Filter Circuit Mixing Circuit Tone Selector Circuit

Circuit boards	Functions
OG2	BASS Tone Generator Circuit Filter Circuit TREMOLO/ENSEMBLE SW MEMORY Circuit
KC	KEY CODE DATA Converter
TE	TREMOLO/ENSEMBLE Circuit
DC	+ 15D Regulator – 15D Regulator ± 15A Regulator
JK	PHONES Amp + 15V Protector Circuit Two – 15V Protector Circuits
TC	EXT. TONECABINET Control Circuit

Tuning

Item	Setting	Adjustment & reading	Where to adjustment	Remark
		Note: Before tuning make sure that the [DEPTH] control in the VIBRATO block is set to "0" and the [TUNE], [POLY-SYNTH DETUNE] and [SOLO TUNE] controls are all center. If the results are not satisfactory after performing the preceding steps, verify the voltages found in the pitch circuit checks on page 76 of the CPA circuit board adjustment. Also verify the key voltage referance, the key voltage adjustment, and the offset adjustment as found on page 89 of the PG circuit board adjustment.		
UPPER ORGAN (LOWER ORGAN)	UPPER ORGAN block [8'] 10	Depressing the A3 Key, adjust L1 on the OG1 board to tune A3 to pitch 440Hz ± 1 cent.	L1 (OG 1)	*1
POLY-SYNTH I	POLY-SYNTH block [MODE] . . . . . I [FEET] . . . . . 8'	Depressing the A3 key, adjust L1 on the PG board to tune A3 to pitch 440Hz ± 1 cent.	L1 (PG)	
POLY-SYNTH II	POLY-SYNTH block [MODE] II	Depressing the A3 key, adjust L2 on the PG board to tune A3 to pitch 440Hz ± 1 cent.	L2 (PG)	

*1 Connect a tuning device to the MIXING OUTPUT jack.
Tuning can be done by ear using two previously tuned voice (Upper/Lower Organ) as a reference and eliminate the beating with the voice being tune.

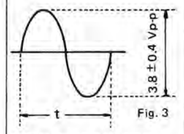
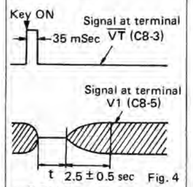
Item	Setting	Adjustment & reading	Where to adjustment	Remark
SOLO SYNTHESIZER 1. PITCH adjustment	SOLO SYNTHESIZER block [FEET] . . . . . 4' UPPER ORGAN block [4'] 10	a) Adjust VR2 on the PG board to tune C6 to ORGAN pitch. b) Adjust VR1 on the PG board to tune C3 to ORGAN pitch. c) Repeat a) and b) to eliminate the beating perfectley.	PG board VR2 VR1	
2. FEET adjustment	[FEET] . . . . . 5 1/3' UPPER ORGAN block [5 1/3'] 10	d) Depressing the C6 Key, adjust VR4 on the PG board to tune C6 to ORGAN pitch.	VR4	
	[FEET] . . . . . 8' UPPER ORGAN block [8'] 10	e) Depressing the C6 Key, adjust VR5 on the PG board to tune C6 to ORGAN pitch.	VR5	
	[FEET] . . . . . 16' UPPER ORGAN block [10] 10	f) Depressing the C6 Key, adjust VR6 on the PG board to tune C6 to ORGAN pitch.	VR6	
	[FEET] . . . . . 32' UPPER ORGAN block [16] 10	g) Depressing the C6 Key, adjust VR7 on the PG board to tune C6 to ORGAN pitch.	VR7	
	[FEET] . . . . . 64' UPPER ORGAN block [16] 10	h) Depressing the C6 Key, adjust VR8 on the PG board to tune C6 to ORGAN pitch.	VR8	

CPA Circuit Board

Item	Setting	Test point	Adjustment & reading	Where to adjustment	Remark
MIXING	OUTPUT block				
1. POLY-SYNTH	[POLY-SYNTH] . . 10	PSI (C2-2) BRO (C6-3)	Depressing the C5 Key, the signal level should be the same at terminals BRO and PSI.		Check
2. STRING	[POLY-SYNTH] . . . 0 [STRING] 10	STI (C2-4) BRO (C6-3)	Depressing the C5 Key, the signal level should be the same at terminals STI and BRO.		Check
3. UPPER ORGAN	[STRING] . . . . . 0 [UPPER ORGAN] 10	UOI (C2-8) OO (C6-7)	Depressing the C5 Key, the signal level should be the same at terminals UOI and OO.		Check
		PI (C1-3) OO (C6-7)	Depressing the C5 Key, the signel level should be the same at terminals PI and OO.		Check
	UPPER Keyboard Endblock TREMOLO/ENSEMBLE [ENSEMBLE] . . . ON	UOI (C2-8) TEO (C3-8)	a. Depressing the C5 Key, the signal level at terminal TEO should be 1.5 times greater than the level at terminal UOI.		Check
		TE (C9-8)	b. The logic level at terminal TE should be a low logic level (−15V).		
• Level adjustment	[ENSEMBLE] . . OFF	MO (C3-1)	c. Adjust the level at terminal MO to 3 times the level appearing at terminal UOI (2-8).	VR1	Adjustment
	[TREMOLO] . . . ON	TEO (C3-8)	d. Same as in a.		Check
• Level adjustment	REAR PANEL EXT. TONECABINET [ON/OFF] . . . . . ON	TO (C3-4)	e. Depressing the C5 Key, adjust the level to 3 times the level appearing at terminal UOI (C2-8).	VR2	Adjustment

Item	Setting	Test point	Adjustment & reading	Where to adjustment	Remark
4. SOLO SYNTHESIZER	[UPPER ORGAN] . . 0 [SOLO] 10	SI (C1-7) SO (C6-8)	Depressing the C5 key, the signal level should be the same at terminals SI and SO.		Check
5. BASS		BI (C2-6) BO (C6-9)	Depressing the C5 Key, the signal level should be the same at terminals BI and BO.		Check
6. LOWER ORGAN	[SOLO] . . . . . 0 [LOWER ORGAN] 10	LOI (C1-5) TEO (C3-8)	Results should be the same as in step 3a.		Check
	LOWER Keyboard Endblock TREMOLO/ENSEMBLE [ENSEMBLE] . . . ON	TE (C9-8)	Results should be the same as in step 3b.		Check
	. . . OFF	MO (C3-1)	Results should be the same as in step 3c.		Check
	[TREMOLO] . . . ON	TEO (C3-8)	Results shall be the same as in step 3a.		Check

Item	Setting	Test point	Adjustment & reading	Where to adjustment	Remark
LINE OUT Control circuit (Muting)	OUTPUT block [ON/OFF] SW	LS (C3-5)	The waveform should appear at terminal LS as shown Figure 2 when the OUTPUT switch is turned on and off. POWER SW ON OFF Fig. 1 OUTPUT 6 ± 2 sec OFF ON +15V 0 −15V Waveform at terminal LS Fig. 2		Check
SOLO SYNTHESIZER & BASS Control circuit	SOLO SYNTHESIZER Switch block, MODE Switches [NORMAL] [BASS] [MANUAL BASS]		The note ranges of SOLO SYNTHESIZER and BASS are given in Table 1.		Check
PITCH circuit 1. TUNE	PITCH block [TUNE] . . . . . − ≀ . . . . . + . . . Center 0	VW (C8-4) V1 (C8-5)	− 3.2V ± 0.2V ≀ + 3.2V ± 0.2V 0V ± 0.1V		Check
2. DETUNE	[DETUNE] . . . . . − ≀ . . . . . + . . . Center 0	V2 (C8-6)	− 1.5V ± 0.3V ≀ + 1.5V ± 0.3V 0V ± 0.1V		
3. SOLO TUNE	[SOLO TUNE] . . . − ≀ . . . . . + . . . Center 0	VS (C8-10)	− 1.5V ± 0.2V ≀ − 3V ± 0.2V Approx. −2V ± 0.002V		

Item	Setting	Test point	Adjustment & reading	Where to adjustment	Remark
DELAY VIBRATO circuit (POLY-SYNTH)	VIBRATO block				
1. Vibrato speed adjustment	DEPTH 10	V1 (C8-5)	 Fig. 3		
	SPEED . . . . . .S		t=0.2 sec (f=5±0.1Hz)	VR4	Adjust-
	. . . . . .F		(f=7±0.3Hz)		ment
2. Delay Time adjustment	DELAY L		When depressing any key, the waveform as shown below should upper at the V1 terminal.		Check
			 Fig. 4		
			t=0.7±0.1 sec	VR3	Adjust- ment

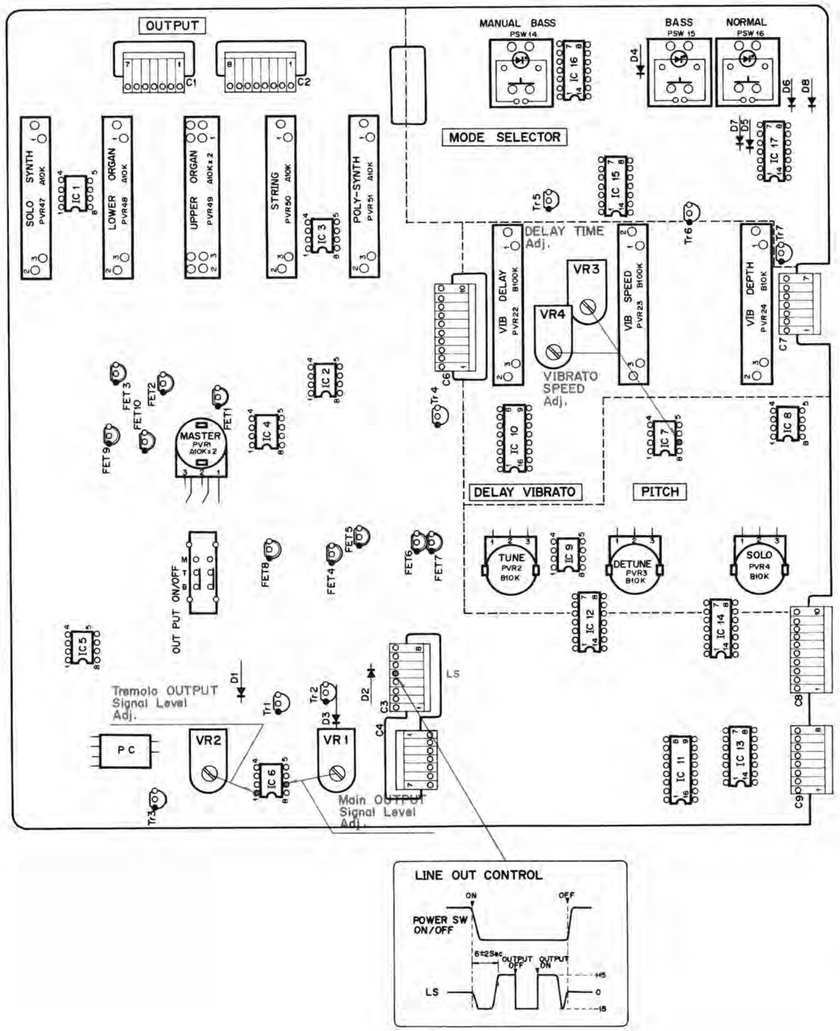
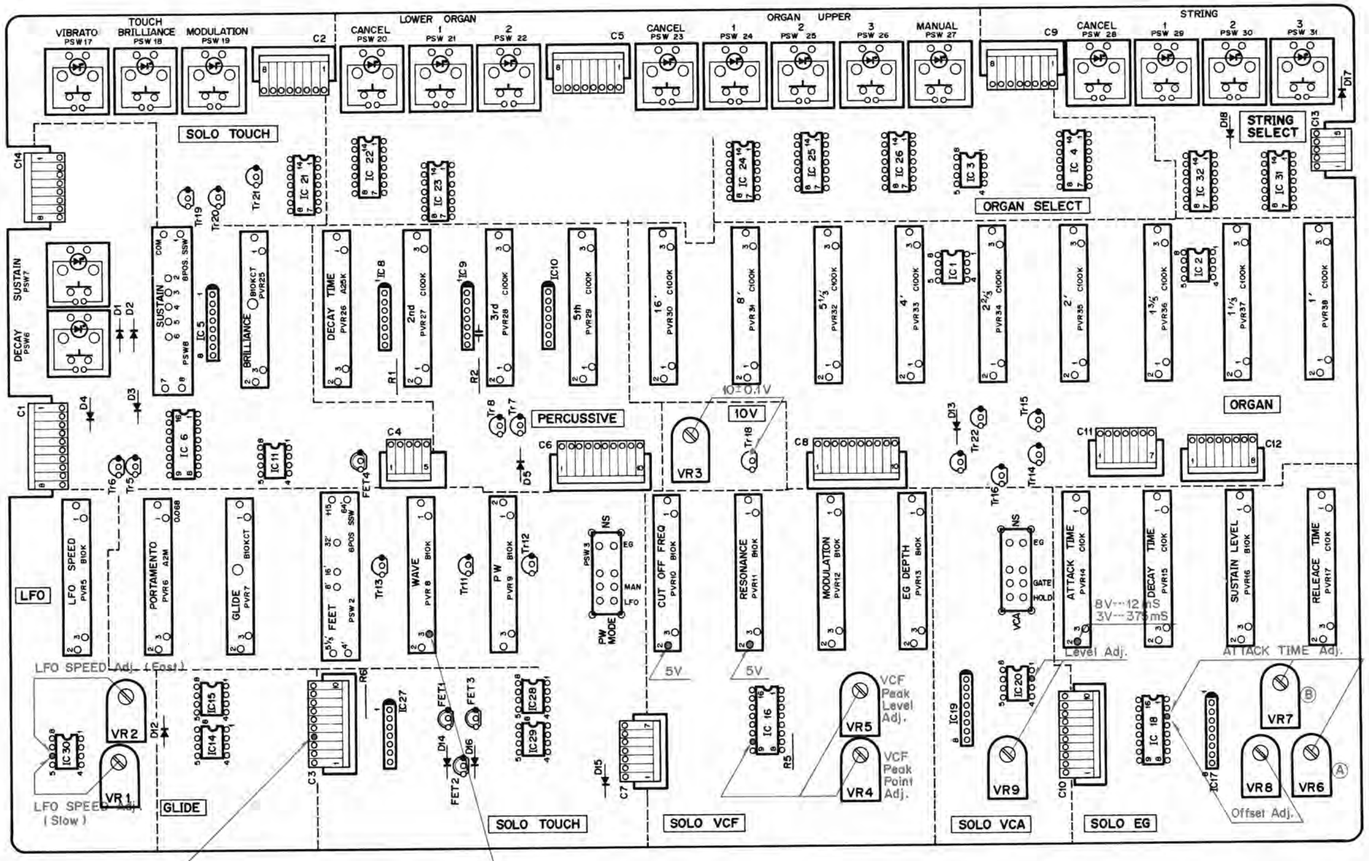


Table 1.

The note ranges of each keyboard corresponding to the settings of the SOLO SYNTHSIZER MODE (NORMAL, BASS) switch and MANUAL BASS switch.

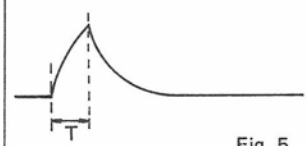
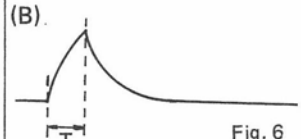
SWITCH SETTINGS			SOLO SYNTHESIZER	UPPER ORGAN	LOWER ORGAN	POLY-SYNTH (STRING)	BASS
1	MODE SW / MANUAL BASS	OFF	No sound is generated.	UPPER KEYBOARD $C_1 \sim C_6$	LOWER KEYBOARD $C_1 \sim C_6$	LOWER KEYBOARD $C_1 \sim C_6$	Sound is generated by connecting BASS PEADL BP2.
2	NORMAL	ON	UPPER KEYBOARD $C_3 \sim C_6$				
3	BASS	ON	Sound is generated by BP2 (Corresponding to $C_3 \sim C_6$ of UPPER KEYBOARD.)				
4	MANUAL BASS	ON	No sound is generated.		LOWER KEYBOARD $G_2 \sim C_6$	LOWER KEYBOARD $G_2 \sim C_6$	Sound is generated by both BP2 and LOWER KEYBOARD ($C_1 \sim F_2\#$). High Note Priority.
5	NORMAL / MANUAL BASS	ON	UPPER KEYBOARD $C_3 \sim C_6$				
6	BASS / MANUAL BASS	ON	BP2 + LK ($C_1 \sim F_2\#$) High Note Priority.				

The volume of the SOLO SYNTHESIZER, UPPER ORGAN, LOWER ORGAN, POLY-SYNTH and BASS can be adjusted.

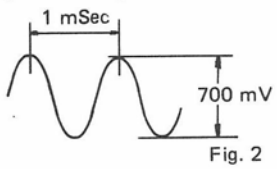
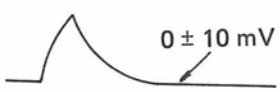
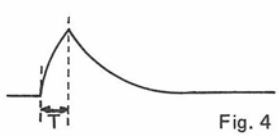
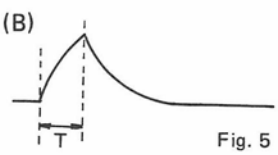


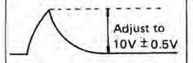
CPB Circuit Board

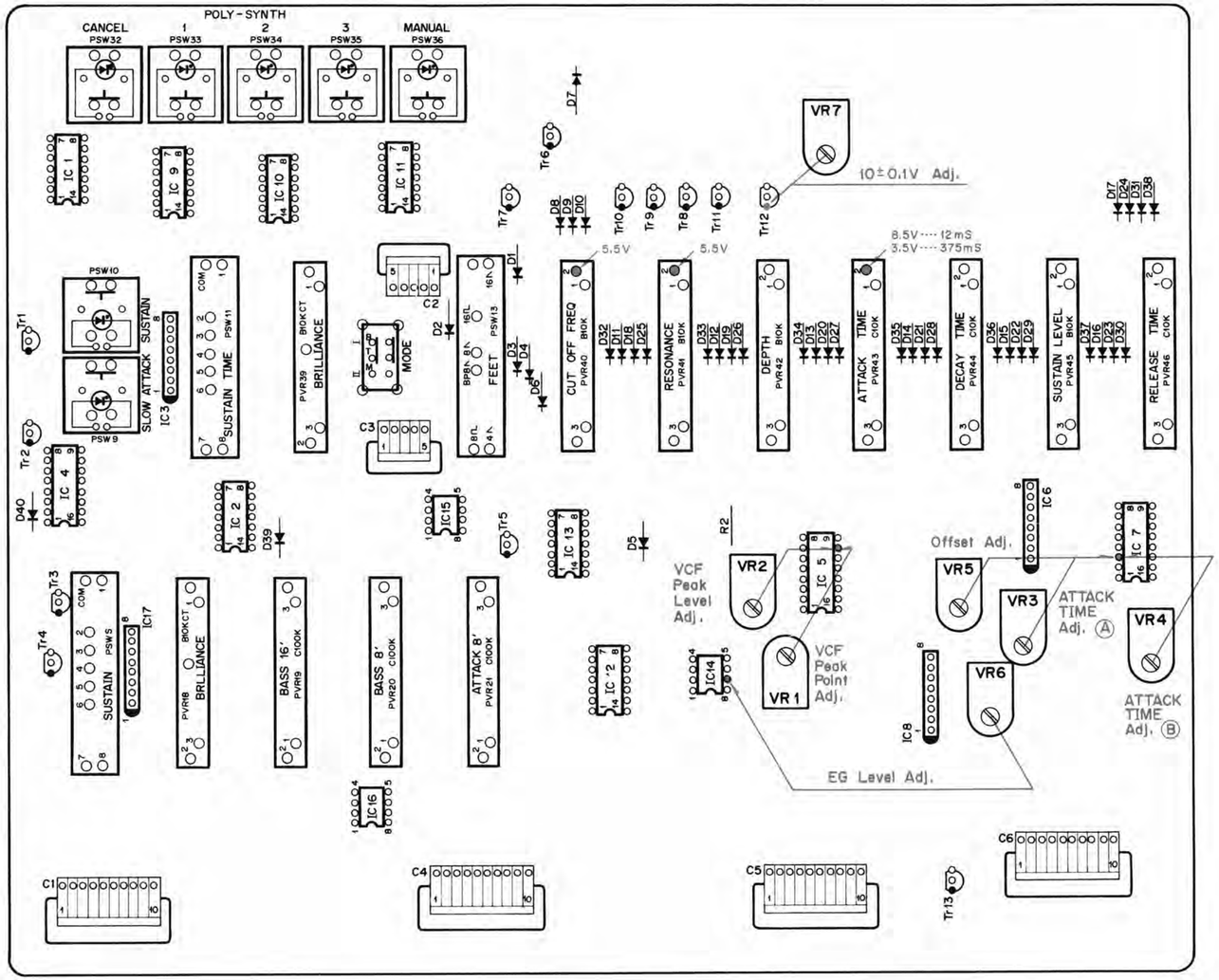
Item	Setting	Test point	Adjustment & reading	Where to adjustment	Remark
Reference voltage (10V) generator		Tr 18-E	Adjust VR3 to obtain a 10V ± 0.1V reading.	VR3 (B5K)	Adjustment
LFO SPEED adjustment	SOLO SYNTHESIZER block LFO SPEED . . . . .F LEO SPEED . . . . .S	IC30-pin6	Adjust to 0.1Hz (10s) ± 0.01Hz with VR1. Adjustment to 100Hz (10ms) ± 10Hz with VR2.	VR1 (B100K) VR2 (B100K)	Adjustment
VCF Peak/peak level adjustment (Tone quality adjustment)	WAVE . . . . . Λ EG DEPTH . . . . .0 Adjust CUTOFF FREQ lever (PVR10) to achieve a +5V reading at the second terminal of PVR10. Adjust RESONANCE lever (PVR11) to achieve a +5V reading at the second terminal of PVR11. FEET . . . . . 8'	IC16-pin 10 (LP)	Depress the C4 Key. [Peak adjustment] 1 mSec Max. Fig. 1 Adjust to achieve maximum amplitude. [Peak level adjustment] Adjust to 1 V. Fig. 2	VR4 (B100K) VR5 (B200K)	
VCA Level adjustment	VCA . . . . . HOLD	IC20-pin 1	Adjust to 450 mV. Fig. 3	VR9 (B100K)	
EG Offset voltage adjustment	Adjust ATTACK TIME lever (PVR14) to achieve a 8V ± 0.1V reading at the second terminal of PVR14. DECAY TIME . . .S SUSTAIN LEVEL . . .0 RELEASE TIME . . . .S	IC18-pin 3 (BO)	0V ± 10 mV Fig. 4 Depressing any Key, adjust to 0V ± 100 mV.	VR8 (B100K)	

Item	Setting	Test point	Adjustment & reading	Where to adjustment	Remark
EG ATTACK TIME adjustment	Adjust [ATTACK TIME] lever (PVR14) to achieve a 8V ± 0.1V reading the second terminal of PVR14. [DECAY TIME] . . .S [SUSTAIN LEVEL] . . .0 [RELEASE TIME] . . .S	IC18-pin 3	(A)  Fig. 5 Depressing any Key, adjust T to 12 mSec.	VR6 (B100K)	Adjust-ment
	Adjust [ATTACK TIME] lever (PVR14) to achieve a 3V ± 0.05V reading at the second terminal of PVR14.	IC18-pin 3	(B)  Fig. 6 Depressing any Key, adjust T to 375 mSec. Note: Both VR6 and VR7 affect ATTACK TIME adjustment each other. If the attack time is longer than 375 mSec, adjust VR7 so that the attack time is slightly longer. If shorter, adjust VR7 so that the attack time is slightly shorter. Repeat steps (A) and (B).	VR7 (B100K)	Adjust-ment

CPC Circuit Board

Item	Setting	Test point	Adjustment & reading	Where to adjustment	Remark
Reference voltage (10V) generator		Tr 12-E	Adjust to 10.5V	VR7	
VCF Peak/peak level adjustment (Tone quality adjustment)	Switch block [POLY-SYNTH] MANUAL . . . . . ON POLY-SYNTH block [FEET] . . . . . 16' Adjust [CUTOFF FREQ] lever (RVR40) to achieve a 5.5V reading at the second terminal of PVR 40. Adjust [RESONANCE] lever (PVR41) to achieve a 5.5V reading at the second terminal of PVR 41. [EG DEPTH] 0	IC5 Pin 10 (LP) of VCF (iG00156)	Depress the C6 Key. [Peak] Fig. 1 Adjust to achieve maximum amplitude. [Peak level]  Fig. 2 Adjust to 700 mV.	VR1 VR2	
EG Offset adjustment	Adjust [ATTACK TIME] lever (PVR43) to achieve a 8.5V reading at the second terminal of PVR43.	IC7 Pin 3 (BO) of EG (iG00159)	 Fig. 3 Depressing any Key, adjust to 0V ± 10mV.	VR5	
ATTACK TIME adjustment	[DECAY TIME] . . .S [SUSTAIN LEVEL] . . . .0 [RELEASE TIME] . . . .S		(A)  Fig. 4 Depressing any Key, adjust T to 12 mSec.	VR3	
	Adjust [ATTACK TIME] level (PVR43) to achieve a 3.5V reading at the second terminal of PVR43.		(B)  Fig. 5 Depressing any Key, adjust T to 375 mSec.	VR4	

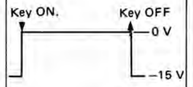
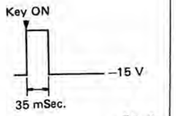
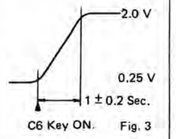
Item	Setting	Test point	Adjustment & reading	Where to adjustment	Remark
			Note: Both VR3 and VR4 attect ATTACK TIME adjustment each other. If the attack time is longer than 375 mSec adjust VR4 so that the attack time is slightly longer. If shorter, adjust VR4 so that the attack time is slightly shorter. Repeat steps (A) and (B).	VR3 VR4	
EG level adjustment	EG DEPTH 10	IC14-pin 7	 Fig. 6	VR6	



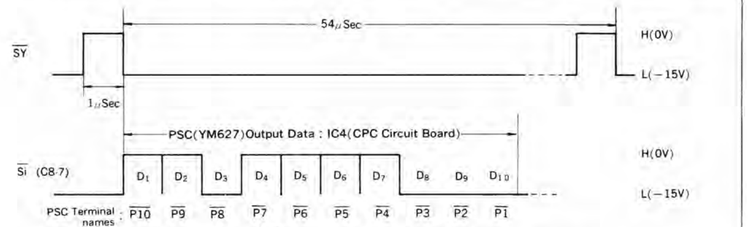
PG Circuit Board

Item	Setting	Test point	Adjustment & reading	Where to adjustment	Remark
Key voltage Reference Generator	SOLO SYNTHESIZER block [PORTAMENTO] . .S PITCH block Adjust [SOLO TUNE] control (PVR 4) to achieve a -2V ± 0.002V at VS terminal.		Depress the C3 Key on the upper keyboard.		
Key voltage adjustment		PV1 (C9-4)	-0.25V ± 0.001V	VR9	Adjustment
Offset adjustment		KVO (C9-3)	+0.25V ± 0.001V	VR3	Adjustment
SOLO SYNTHESIZER TUNING			Refer to tuning procedure on page 73.		
Master clock osc adjustment (POLY-SYNTH PITCH tuning)			Refer to tuning procedure on page 72.		
STRING level adjustment	POLY-SYNTH block [MODE] . . . . . I Switch block [STRING] 2 . . . . ON Depress the C3 Key.	STO (C12-1)	Adjust VR10 to achieve 0.26 Vp-p reading at STO terminal.	VR10	Adjustment

PG Circuit Board

Item	Setting	Test point	Adjustment & reading	Where to adjustment	Remark
TRIGGER Detector	Depress the A3 Key on the upper keyboard.	$\overline{LTR}$ (C3-1)	 Fig. 1		Check
	Depress the A3 Key on the lower keyboard.	$\overline{PTR}$ (C3-7)			
	Depress the A3 Key on the upper keyboard.	$\overline{VTR}$ (C3-6)	 Fig. 2		Check
PORTAMENTO	[PORTAMENTO] . . .L	KVO (C9-3)	Depress the C3 Key → C6 Key.  Fig. 3		Check
VCO OUT	Depress the C6 Key.	SYO (C11-2)	Fig. 4		Check

● Serial Data Timing Chart for GOA (POLY-SYNTH Generator)



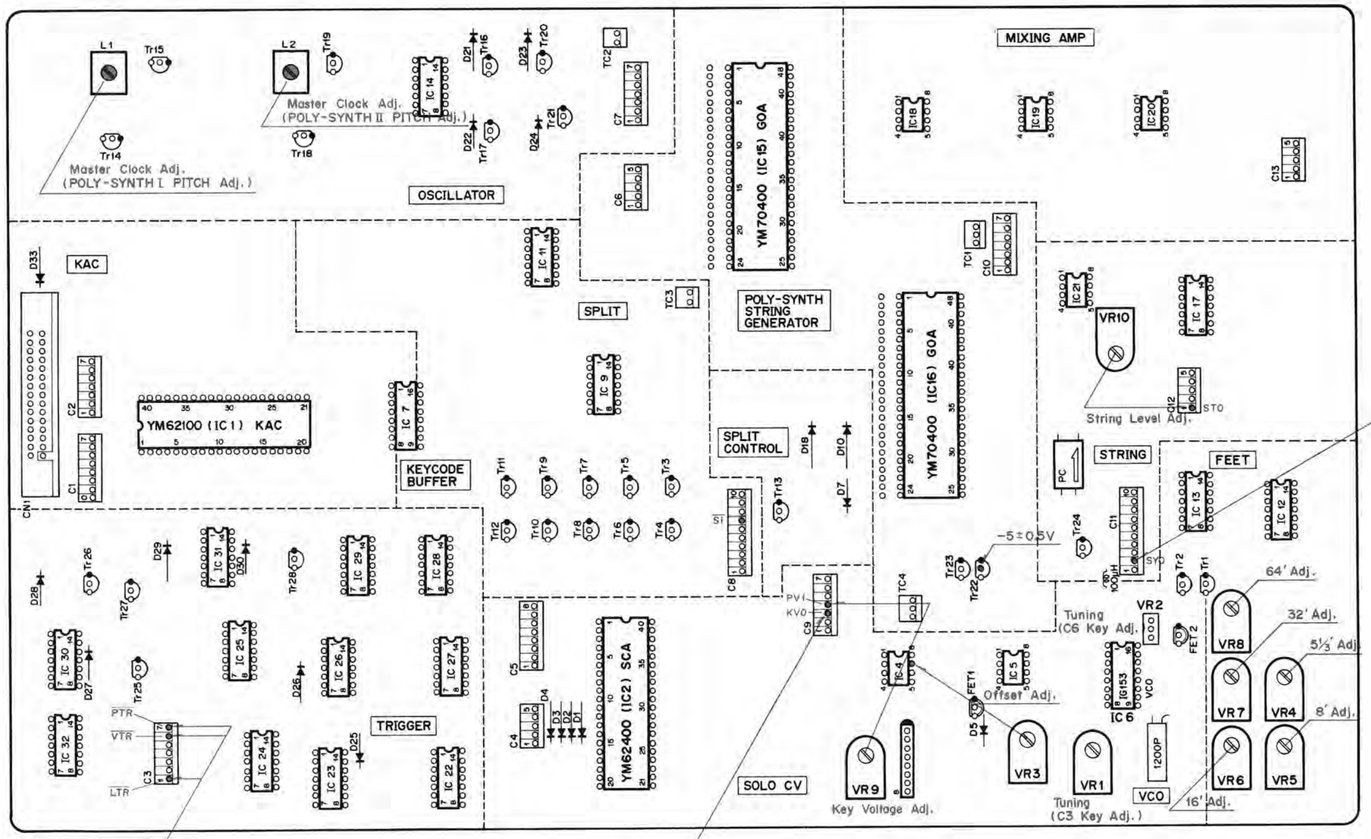
Note)

D_1 : H or L→SLOW ATTACK / FAST
D_2 : H or L→DAMP / SUSTAIN
D_3 : L (Fixed)
D_4 : H (Fixed)
D_5 : H or L→S_1
D_6 : H or L→S_2 } SUSTAIN Data
D_7 : H or L→S_3
D_8 : L (Fixed)
D_9 : L (Fixed)
D_{10} : L (Fixed)

Condition	PSC terminal levels P10	PSC terminal levels P9	Sound volume envelope of sound source
SLOW ATTACK OFF SUSTAIN	L	H	Key on / off; 3.5ms; 30ms
SLOW ATTACK ON	H	H	80ms; 30ms
SUSTAIN ON	L	L	3.5ms; Varies with SUSTAIN Lever
SLOW ATTACK ON SUSTAIN	H	L	80ms; Varies with SUSTAIN Lever

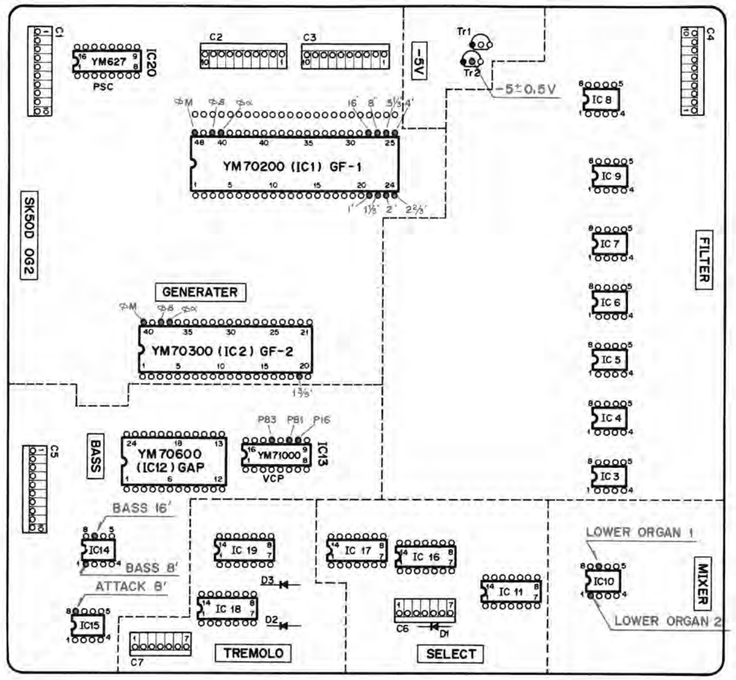
● SUSTAIN TIME Data.

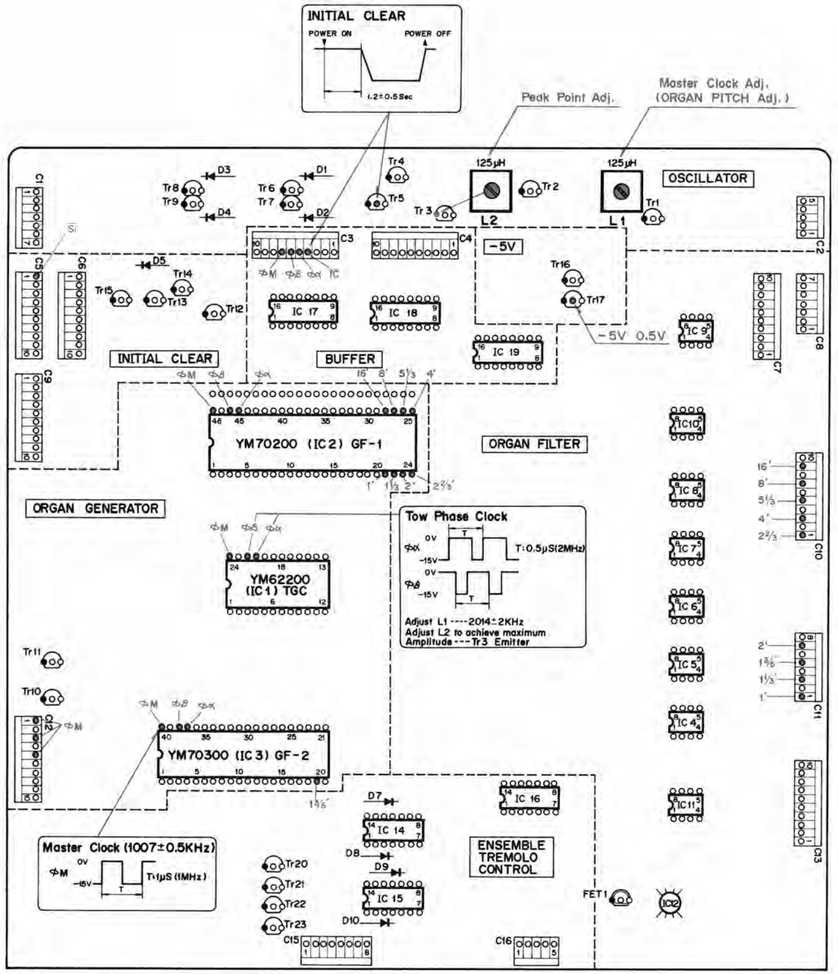
SUSTAIN Lever (PSW11)		Sustain data D_5 (S_1)	Sustain data D_6 (S_2)	Sustain data D_7 (S_3)	Sustain time(msec)
LONG	8	L	L	L	1600
	7	H	L	L	1100
	6	H	H	L	750
	5	L	H	L	450
	4	L	H	H	250
	3	H	H	H	150
	2	H	L	H	90
SHORT	1	L	L	H	30



Key Voltage

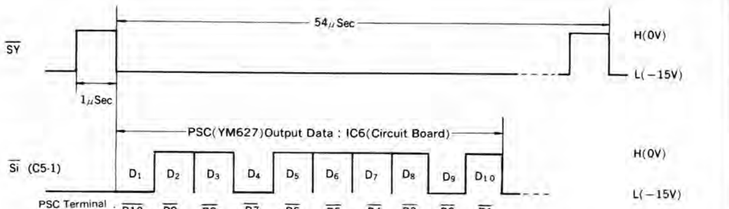
Key	Key Voltage	Key	Key Voltage	Key	Key Voltage
C3	0.250	C4	0.500	C5	1.000
C#3	0.265	C#4	0.530	C#5	1.059
D3	0.281	D4	0.561	D5	1.122
D#3	0.297	D#4	0.595	D#5	1.189
E3	0.315	E4	0.630	E5	1.260
F3	0.334	F4	0.667	F5	1.335
F#3	0.354	F#4	0.707	F#5	1.414
G3	0.375	G4	0.749	G5	1.499
G#3	0.394	G#4	0.794	G#5	1.587
A3	0.420	A4	0.841	A5	1.682
A#3	0.445	A#4	0.891	A#5	1.782
B3	0.472	B4	0.944	B5	1.886
				C6	2.000





OG1 Circuit Board

Item	Setting	Test point	Adjustment & reading	Where to adjustment	Remark
Master Clock adjustment (ORGAN PITCH adjustment)	PITCH block TUNE ..... center Depress the A3 Key.		Adjust L1 to tune A3 to pitch ± 1 cent.	L1	Adjust-ment
PEAK point adjustment	Depress the A3 Key.	Tr3-E	Adjust L2 to achieve maximum amplitude at the emitter of Tr3.	L2	


54μSec
H(0V)
L(−15V)
1μSec
PSC(YM627)Output Data : IC6(Circuit Board)
SI (C5-1)
D1 D2 D3 D4 D5 D6 D7 D8 D9 D10
PSC Terminal names : P10 P9 P8 P7 P6 P5 P4 P3 P2 P1

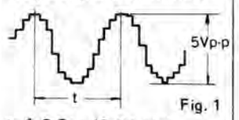
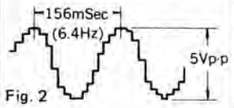
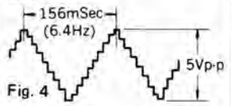
Note)
- D_1 : L (Fixed)
- D_2 : H or L→DAMP / SUSTAIN
- D_3 : H or L→NORMAL / PERCUSSIVE
- D_4 : L (Fixed)
- D_5 : H or L→$\overline{S_1}$ } SUSTAIN Data
- D_6 : H or L→$\overline{S_2}$ } SUSTAIN Data
- D_7 : H or L→$\overline{S_3}$ } SUSTAIN Data
- D_8 : H or L→RESPONSE
- D_9 : L (Fixed)
- D_{10} : H (Fixed)

Condition		PSC terminal levels P9	P8	P3	Sound volume envelope of sound source	Mode
DECAY SUSTAIN	OFF	H	H	H	Key on off	Direct Keying mode
SUSTAIN	ON	L	H	L	Varies with SUSTAIN Lever	Normal mode
DECAY	ON	H	L	L		PERCUSSIVE mode
DECAY SUSTAIN	ON	L	L	L		PERCUSSIVE mode

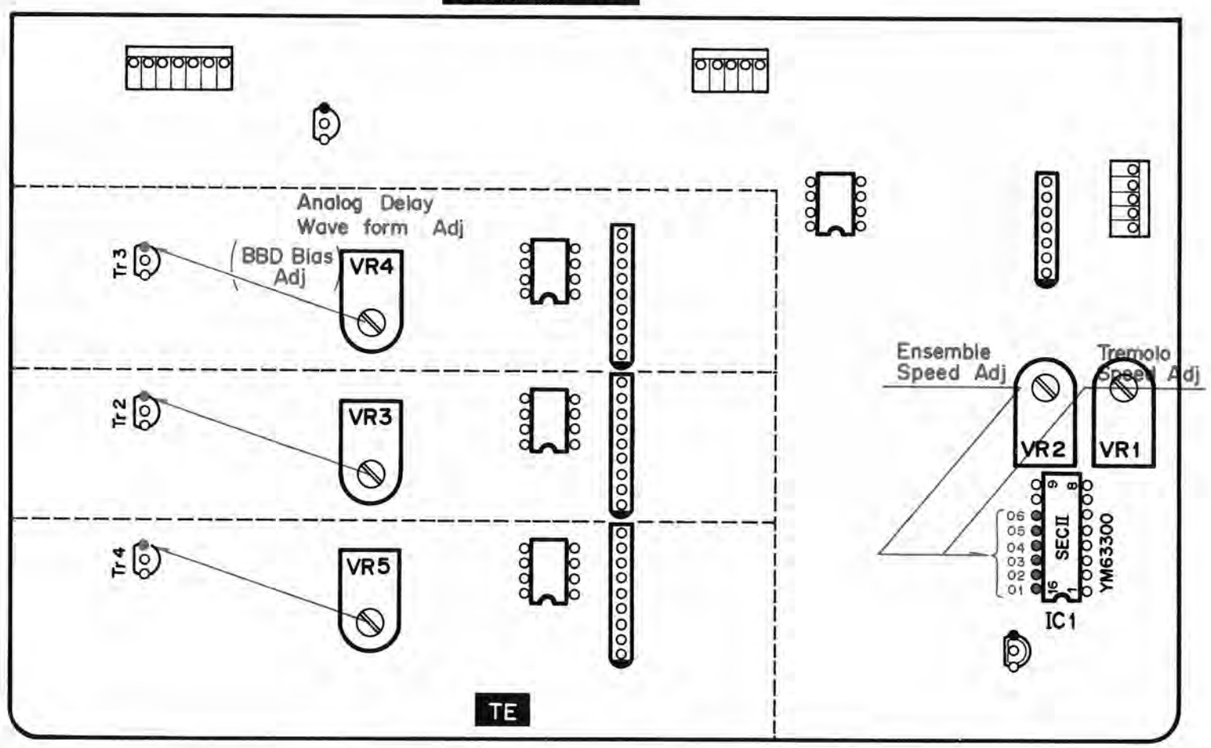
● SUSTAIN TIME Data.

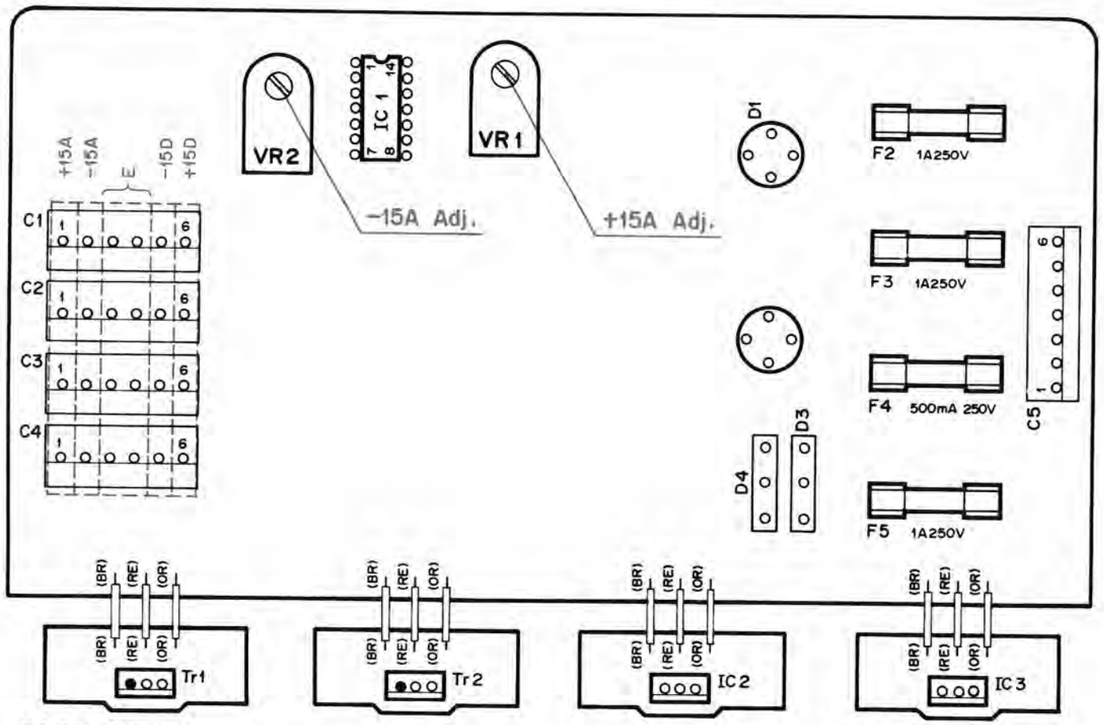
SUSTAIN Lever (PSW8)		Sustain data D_5 ($\overline{S_1}$)	D_6 ($\overline{S_2}$)	D_7 ($\overline{S_3}$)	Sustain time(msec)
LONG	8	L	L	L	1600
	7	H	L	L	1100
	6	H	H	L	750
	5	L	H	L	450
	4	L	H	H	250
	3	H	H	H	150
	2	H	L	H	90
SHORT	1	L	L	H	30

TE Circuit Board

Item	Setting	Test point	Adjustment & reading	Where to adjustment	Remark
T/E Clock Generator Circuit Ensemble Speed adjustment	UPPER or LOWER Keyboard Endblock TREMOLO/ENSEMBLE [ENSEMBLE] . . . ON	O1 (IC1 - pin 16) O2 (IC1 - pin 15) O3 (IC1 - pin 14)	The waveforms shown in Fig 1 and 2 should appear at O1, O2, O3, and O4, O5, O6 (IC1) terminal.  Fig. 1 t=1.6 Sec (0.64 Hz)	VR2	
		O4 (IC1 - pin 13) O5 (IC1 - pin 12) O6 (IC1 - pin 11)	 Fig. 2		
Tremolo Speed adjustment	[ENSEMBLE] . . OFF [TREMOLO] . . . . ON	O1 (IC1 - pin 16)	The waveforms shown in Fig 3 should appear at O1. At this time adjust VR1 so that the frequency is 6.4Hz ± 0.1Hz. Fig. 3 t=156 mSec (6.4 Hz)	VR1	
		O2 (IC1 - pin 15) O3 (IC1 - pin 14)	The waveforms shown in Fig 4 should appear at O2, O3.  Fig. 4		
		O4 (IC1 - pin 13) O5 (IC1 - pin 12) O6 (IC1 - pin 11)	Check for a DC voltage of -2.5V.		
BBD Circuit	Connect pin 9 (TEST-Terminal) of IC1 to -15V. UPPER Keyboard Endblock TREMOLO/ENSEMBLE [TREMOLO] . . . ON OUTPUT block [UPPER ORGAN] .10 UPPER ORGAN block [8] 10	Tr2-E Tr3-E Tr4-E	Adjust VR3, VR4, and VR5 for the best achievable sine wave.	VR3 VR4 VR5	

Component Side





DC Circuit Board

Item	Setting	Test point	Adjustment & reading	Where to asjustment	Remark
Power supply voltage adjustment 1) +15A		(C1-1) (C2-1) (C3-1) (C4-1)	+15V ± 0.015V	VR1 (B-50K)	Adjust-ment
2) -15A		(C1-2) (C2-2) (C3-2) (C4-2)	−15V ± 0.015V	VR2 (B-2K)	Adjust-ment
1) +15D		(C1-6) (C2-6) (C3-6) (C4-4)	+15V ± 0.7V		Check
2) −15D		(C1-5) (C2-5) (C3-5) (C4-5)	−15V ± 0.7V		Check

PC Circuit Board

Item	Setting	Test point	Adjustment & reading	Where to adjustment	Remark
TOUCH CONTROL	No Keys depressed	+S (C-3) -S (C-1)	4.2V ± 0.2V 4.0V		Check Check
	Apply pressure while depressing a Key. ($C_3 \sim C_6$)	-S (C-1)	3.0V		Check

JK Circuit Board

Item	Setting	Test point	Adjustment & reading	Where to adjustment	Remark
+15V Protector circuit		EBR (C3-2)	+15V $^{+0}_{-2}$V		Check
-15V Protector circuit		SFC (C3-4)	-15V $^{+2}_{-0}$V		Check
-15V Protector circuit		FC (C3-3)	-15V $^{+2}_{-0}$V		Check
LINE OUT Control Circuit MO output signal	OUTPUT block ON/OFF . . . . . ON	MI (C1-3) MO (C1-5)	Signal level should be equal to the signal input at terminal MI.		Check
MIXED OUTPUT		MIXED OUTPUT	Check for an output signal from the MIXED OUTPUT		Check
PHONES Amp		PHONES OUTPUT	Check for an output signal from a set of stereo headphones.		Check
	ON/OFF . . . . OFF	MO (C1-5) MIXED OUTPUT	Check for no output		Check
		PHONES OUTPUT	Check for an output signal from a set of stereo headphones.		

YAMAHA

SYMPHONIC ENSEMBLE

SK50D

PARTS LIST

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006445

Printed in Japan

A. Electronic Components

	Ref. No.	Part No.	Description		部品名	Remarks	Common Model		
		30 12 91 NA 80 68 60	Circuit Board, TE		T E シ ー ト		SK20		
※		30 12 00 NA 80 71 80	— do. —, KC		K C 〃				
※		30 12 93 NA 80 72 00	— do. —, CPA		C P A 〃				
※		30 12 93 NA 80 72 10	— do. —, CPB		C P B 〃				
※		30 12 93 NA 80 72 20	— do. —, CPC		C P C 〃				
※		30 12 93 NA 80 72 30	— do. —, PG		P G 〃				
※		30 12 93 NA 80 72 40	— do. —, OG1		O G 1 〃				
※		30 12 93 NA 80 72 50	— do. —, OG2		O G 2 〃				
※		30 12 00 NX 80 00 70	— do. —, PN1		P N 1 〃				
※		30 12 00 NX 80 00 80	— do. —, PN2		P N 2 〃				
※		30 12 00 NX 80 00 50	— do. —, JK		J K 〃				
※		30 12 00 NX 80 00 60	— do. —, TC		T C 〃				
※		30 12 00 NA 80 73 00	— do. —, DC		D C 〃	J.U.C.			
※		30 12 00 NA 80 73 10	— do. —, — do. —		〃 〃	G			
※		30 12 00 NA 80 73 30	— do. —, AC		A C 〃	U.C			
※		30 12 00 NA 80 73 40	— do. —, — do. —		〃 〃	G			
※		30 12 00 NA 80 73 50	— do. —, — do. —		〃 〃	J			
※		30 12 00 NA 80 74 30	— do. —, PC		P C 〃				
※		30 12 92 NA 80 76 30	— do. —, SW		S W 〃		SK30		
※		40 10 00 LC 86 27 00	Printed Circuit Board		プリント基板	PC Sensor			
※		40 10 00 LC 86 42 00	— do. —		〃	Bass Pedal			
		40 10 00 iG 00 11 70	IC	TC4001BP	I C	NOR			
		40 10 00 iG 00 11 80	— do. —	TC4013BP	〃	D-F/F x 2			
		40 10 00 iG 00 11 90	— do. —	TC4015BP	〃	Shift Register x 2			
		40 10 00 iG 00 12 40	— do. —	TC4011BP	〃	NAND			
		40 10 00 iG 00 12 60	— do. —	TC4049BP	〃	Inverter			
		40 10 00 iG 00 12 70	— do. —	TC4066BP	〃	Analog SW			
		40 10 00 iG 00 13 90	— do. —	NJM4558DV	〃	OP Amp x 2			
		40 10 00 iG 00 15 00	— do. —	iG00150	〃	VCO II			
		40 10 00 iG 00 15 10	— do. —	iG00151	〃	VCA			
		40 10 00 iG 00 15 30	— do. —	iG00153	〃	VCO III			
		40 10 00 iG 00 15 60	— do. —	iG00156	〃	(+) VCF			
		40 10 00 iG 00 15 70	— do. —	iG00157	〃	SW-MEMORY			
		40 10 00 iG 00 15 90	— do. —	iG00159	〃	EG-VCA			
		40 10 00 iG 00 14 40	— do. —	TC4071BP	〃	OR			
		40 10 00 iG 00 16 90	— do. —	TC4016BP	〃	Analog SW			
		40 10 00 iG 00 17 00	— do. —	TC4019BP	〃	AND-OR Select			
		40 10 00 iG 00 17 20	— do. —	TC4069UBP	〃	Inverter			
		40 10 00 iG 00 17 40	— do. —	TC4050BP	〃	Buffer			
		40 10 00 iG 00 17 60	— do. —	TC4081BP	〃	AND			
		40 10 00 iG 02 55 00	— do. —	TA7504S	〃	OP Amp			
		40 10 00 iG 02 56 00	— do. —	TA7505M	〃	— do. —			
		40 10 00 iG 02 60 00	— do. —	iG02600	〃	VCA			
※		40 10 00 iG 02 60 10	— do. —	iG02601	〃	— do. —			
		42 00 00 iG 02 70 00	— do. —	HD7404P	〃	Inverter (TTL)			
		40 10 00 iG 02 87 00	— do. —	μPC14315H	〃	+15V Regulator			
※		42 00 00 iG 03 16 00	— do. —	μPC78L05	〃	+5V Regulator			
		40 10 00 iG 03 20 10	— do. —	TA7179P	〃	±15V Regulator			
		40 10 00 iG 03 28 00	— do. —	iG03280	〃	Di Matrix			
		40 10 00 iG 03 29 00	— do. —	iG03290	〃	BBD Driver			
		40 10 00 iG 03 56 00	— do. —	TC4532BP	〃	8 bit Encoder			
		40 10 00 iG 03 57 00	— do. —	TC4075BP	〃	3 input OR			

※ New Parts (新規部品) (J : Japan, U : US.American, C : Canadian, G : General)

	Ref. No.	Part No.	Description	部品名	Remarks	Common Model		
		40 10 00 iG 03 58 00	IC	TC40175BP	I C	D-F/F			
		40 10 00 iG 04 33 00	– do. –	TC4093BP	〃	NAND (Schmitt Trigger)	SK20		
※		40 10 00 iG 04 34 00	– do. –	TC5027BP	〃	Counter			
		40 10 00 iG 04 61 00	– do. –	MN3009	〃	BBD			
※		40 10 00 iG 04 73 00	– do. –	TC4025BP	〃	3 input NOR			
※		40 10 00 iG 04 75 00	– do. –	TC4078BP	〃	8 input NOR			
※		40 10 00 iG 04 76 00	– do. –	TC4082BP	〃	4 input AND			
※		40 10 00 iG 04 77 00	– do. –	TC4514BP	〃	4 bit to 16 bit DECODER			
		30 10 00 iT 62 10 00	– do. –	YM62100	〃	KAC	SK20		
		30 10 00 iT 62 20 00	– do. –	YM62200	〃	TGC	SK20		
※		30 10 00 iT 62 40 00	– do. –	YM62400	〃	SCA	SK30		
		30 10 00 iT 62 60 00	– do. –	YM62600	〃	DVG	SK20		
		30 10 00 iT 62 70 00	– do. –	YM62700	〃	PSC	SK20		
		30 10 00 iT 63 30 00	– do. –	YM63300	〃	SEC II	SK20		
		30 10 00 iT 70 20 00	– do. –	YM70200	〃	GF1	SK20		
※		30 10 00 iT 70 30 00	– do. –	YM70300	〃	GF2	SK30		
		30 10 00 iT 70 40 00	– do. –	YM70400	〃	GOA	SK20		
※		30 10 00 iT 70 60 00	– do. –	YM70600	〃	GAP			
※		30 10 00 iT 71 00 00	– do. –	YM71000	〃	VCP			
		40 10 00 iA 04 90 10	Transistor	2SA490(Y)	トランジスタ				
		40 10 00 iA 09 50 00	– do. –	2SA950(Y)	〃				
		40 10 00 iA 10 15 70	– do. –	2SA1015(O,Y)	〃				
		40 10 00 iA 11 64 00	– do. –	2SA1164(Y)	〃				
		40 10 00 iA 11 64 10	– do. –	– do. – (GR)	〃				
		40 10 00 iC 07 52 20	– do. –	2SC752(Y)	〃				
		40 10 00 iC 18 15 70	– do. –	2SC1815(O,Y)	〃				
		40 10 00 iC 21 20 00	– do. –	2SC2120(Y)	〃				
		42 00 00 iD 02 34 20	– do. –	2SD234(Y)	〃				
		40 10 00 iE 00 00 10	FET	2SK30(Y)	FET				
		40 10 00 iE 10 12 30	– do. –	2SK105	〃				
		40 10 00 iF 00 00 40	Diode	1S1555	ダイオード				
		40 10 00 iF 00 08 80	– do. –	WZ050	〃				
		40 10 00 iH 00 02 80	– do. –	1D2C1	〃				
		40 10 00 iH 00 02 90	– do. –	1D2Z1	〃				
		40 10 00 iH 00 04 70	– do. –	1D4B1	〃				
		40 10 00 HQ 23 00 10	Slide Variable Resistor	A-10KΩ x 2	スライドボリューム				
		40 10 00 HQ 23 00 20	– do. –	A-10KΩ	〃				
		40 10 00 HQ 23 00 30	– do. –	A-25KΩ	〃				
		40 10 00 HQ 23 00 40	– do. –	B-100KΩ	〃				
		40 10 00 HQ 23 00 50	– do. – (with open)	– do. –	〃				
		40 10 00 HQ 23 00 60	– do. –	B-10KΩ	〃				
		40 10 00 HQ 23 00 70	– do. –	– do. –	〃	Center Click			
		40 10 00 HQ 23 00 80	– do. –	C-100KΩ	〃				
		40 10 00 HQ 23 00 90	– do. –	C-10KΩ	〃				
※		40 10 00 HQ 23 01 10	– do. –	A-2MΩ	〃				
		40 10 00 HS 31 05 70	Rotary Variable Resistor	B-10KΩ	ロータリーボリューム				
		40 10 00 HS 31 09 90	– do. –	A-10KΩ x 2	〃				
		40 10 00 HT 19 00 10	Semi Variable Resistor	B-500Ω	半固定抵抗				

※ New Parts (新規部品)

Ref. No.	Part No.	Description		部品名	Remarks	Common Model		
	40 10 00 HT 19 00 20	Semi Variable Resistor	B-1KΩ	半固定抵抗	V10K			
	40 10 00 HT 19 00 40	– do. –	B-5KΩ	〃	V10K8-4-2			
	40 10 00 HT 19 00 50	– do. –	B-10KΩ	〃	– do. –			
	40 10 00 HT 19 00 70	– do. –	B-50KΩ	〃	– do. –			
	40 10 00 HT 19 00 80	– do. –	B-100KΩ	〃	– do. –			
	40 10 00 HT 19 00 90	– do. –	B-200KΩ	〃	– do. –			
	40 10 00 HT 19 01 00	– do. –	B-500KΩ	〃	– do. –			
	40 10 00 HT 19 01 30	– do. –	B-2KΩ	〃	V10K			
	40 10 00 HT 69 00 10	– do. –	B-5KΩ	〃	RJ 9W			
	40 10 00 HL 32 51 20	Metal Oxide Film Resistor	120Ω	酸金抵抗				
	40 10 00 HL 31 24 70	– do. –	0.47Ω	〃				
	40 10 00 HL 31 26 80	– do. –	0.68Ω	〃				
	40 10 00 HL 31 34 70	– do. –	4.7Ω	〃				
	40 10 00 HL 31 54 70	– do. –	470Ω	〃				
	40 10 00 HU 57 52 70	Metal Film Resistor	±1% 270Ω	金属皮膜抵抗				
	40 10 00 HU 57 61 00	– do. –	–do.– 1KΩ	〃				
	40 10 00 HU 57 65 10	– do. –	–do.– 5.1KΩ	〃				
	40 10 00 HU 57 66 80	– do. –	–do.– 6.8KΩ	〃				
	40 10 00 HU 57 69 10	– do. –	–do.– 9.1KΩ	〃				
	40 10 00 HU 57 71 00	– do. –	–do.– 10KΩ	〃				
	40 10 00 HU 57 71 50	– do. –	–do.– 15KΩ	〃				
	40 10 00 HU 57 71 80	– do. –	–do.– 18KΩ	〃				
	40 10 00 HU 57 72 00	– do. –	–do.– 20KΩ	〃				
	40 10 00 HU 57 72 20	– do.–	–do.– 22KΩ	〃				
	40 10 00 HU 57 72 70	– do. –	–do.– 27KΩ	〃				
	40 10 00 HU 57 74 70	– do. –	–do.– 47KΩ	〃				
	40 10 00 HU 57 81 00	– do. –	–do.– 100KΩ	〃				
	40 10 00 HU 59 51 00	– do. –	±0.1% 100Ω	〃				
	40 10 00 HU 59 61 00	– do. –	–do.– 1KΩ	〃				
	40 10 00 HU 59 71 00	– do. –	–do.– 10KΩ	〃				
※	40 10 00 HU 59 72 00	– do. –	–do.– 20KΩ	〃				
	40 10 00 HU 59 74 00	– do. –	–do.– 40KΩ	〃				
	40 10 00 HU 59 78 00	– do. –	–do.– 80KΩ	〃				
	40 10 00 HU 59 81 60	– do. –	–do.– 160KΩ	〃				
※	40 10 00 HZ 00 18 30	– do. –	–do.– 1.684KΩ	〃				
※	40 10 00 HZ 00 18 40	– do. –	–do.– 2.414KΩ	〃				
※	40 10 00 HZ 00 18 50	– do. –	–do.– 8.243KΩ	〃				
※	40 10 00 HZ 00 18 60	– do. –	–do.– 13.35KΩ	〃				
※	40 10 00 HZ 00 18 70	– do. –	–do.– 29.94KΩ	〃				
	40 10 00 FD 65 21 20	Polystyrene Capacitor	120pF	スチロールコンデンサ				
	40 10 00 FD 65 22 70	– do. –	270pF	〃				
	40 10 00 FF 04 31 20	Polystyrene Capacitor	1200pF	防湿型スチコン				
	40 10 00 FL 63 71 00	Bipolar Capacitor	16V 10μF	バイポーラコンデンサ				
	40 10 00 FL 64 62 20	– do. –	25V 2.2μF	〃				
	40 10 00 FL 66 61 00	– do. –	50V 1μF	〃				
	40 10 00 FN 14 61 00	Solid Alminium Capacitor	25V 1μF	固体アルミコンデンサ				
	40 10 00 FN 24 56 80	– do. –	–do.– 0.68μF	〃				
	40 10 00 FN 24 61 00	– do. –	–do.– 1μF	〃				

※ New Parts (新規部品)

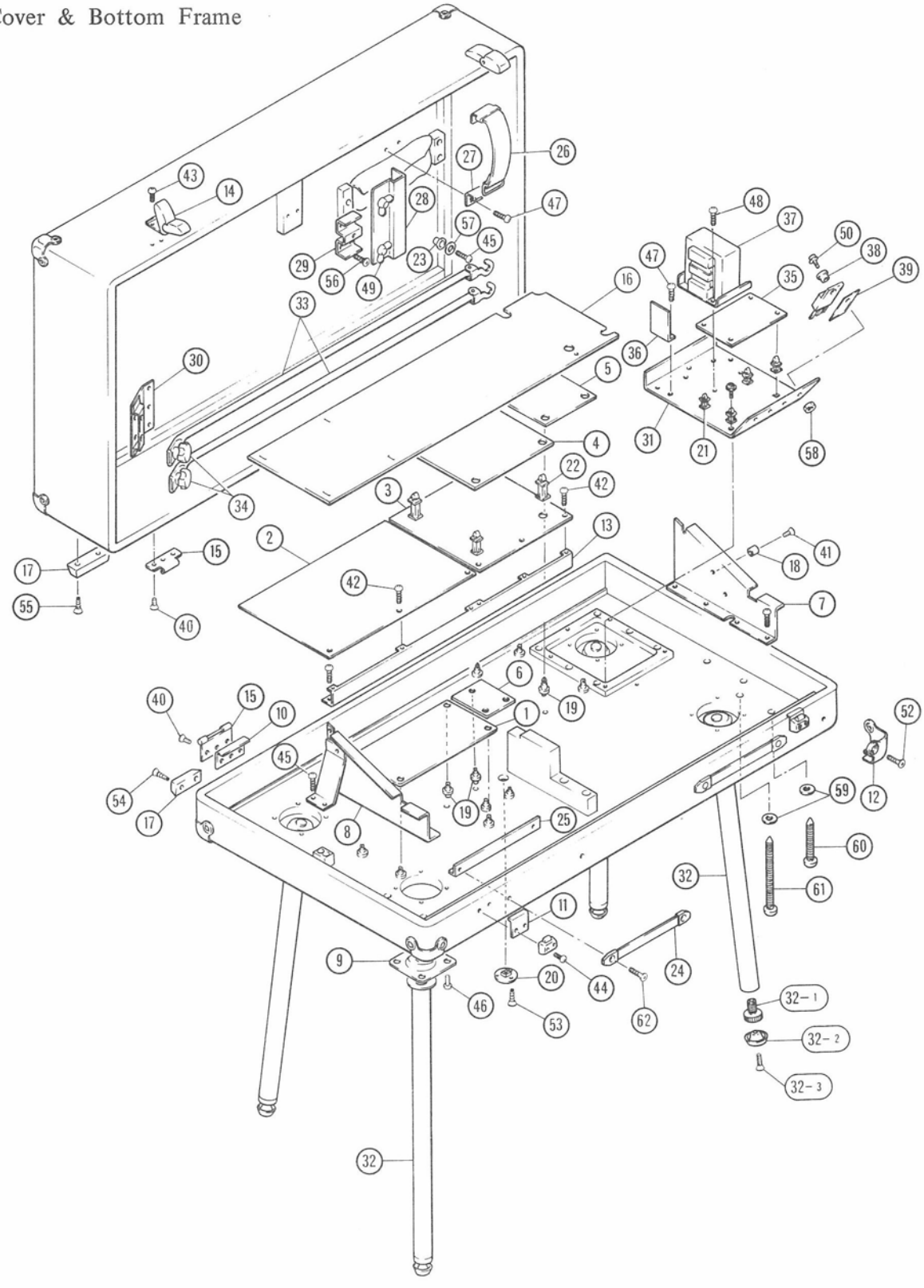
	Ref. No.	Part No.	Description		部品名	Remarks	Common Model		
		40 10 00 FZ 00 22 50	Spark Killer Capacitor	0.022μF	スパークキラーコンデンサ				
		40 10 00 UJ 12 84 70	Electrolytic Capacitor	10V 470μF	電解コンデンサ				
※		40 10 00 UJ 13 91 00	— do. —	16V 1000μF	〃				
※		40 10 00 UJ 15 91 00	— do. —	35V 1000μF	〃				
		40 10 00 KA 40 05 90	Slide Switch	2way, 3contact (NS)	スライドスイッチ	2回路3接点(NS)			
		40 10 00 KA 40 06 00	— do. —	2way, 2contact (NS)	〃	2回路2接点(NS)			
		40 10 00 KA 40 07 90	— do. —	8contact (non click)	〃	8接点(クリック無し)			
※		40 10 00 KA 40 08 00	— do. —	6contact (with click)	〃	6接点(クリック有り)			
※		40 10 00 KA 40 08 40	— do. —	2way, 2contact (S)	〃	2回路2接点(S)			
		40 10 00 KA 90 17 00	Push Switch with L.E.D	Gray	プッシュスイッチ				
		40 10 00 KA 90 17 10	— do. —	White	〃				
		40 10 00 KA 10 08 10	Power Switch		パワースイッチ				
		40 10 00 iK 00 02 60	Photo Cuppler	P873-G35-201B	フォトカプラー				
		40 10 00 iK 00 02 90	— do. —	P873-13	〃				
		40 10 00 iK 00 00 30	Photo Cell		フォトセル	EXP Pedal			
※		40 10 00 iK 00 03 20	Photo Sensor		フォトセンサー	Touch Control			
		40 10 00 GE 30 01 20	Choke Coil	100μH	チョークコイル				
		40 10 00 GE 30 03 50	— do. —	68μH	〃				
		40 10 00 GE 90 01 70	OSC Coil	125μH	発振コイル				
		40 10 00 LB 20 15 40	Jack	JL2B	ジャック				
		40 10 00 LB 60 33 70	Socket	11P	ソケット				
		40 10 00 JB 00 01 70	Lamp	24V 5W	電球	EXP Pedal			
		40 10 00 KB 00 07 10	Fuse	250V T500mA	ミニチュアヒューズ	Circuit Board, DC G			
		40 10 00 KB 00 07 30	— do. —	—do.— T1A	〃	— do. — G			
		40 10 00 KB 00 24 40	— do. —	—do.— 500mA	〃	— do. — J.U.C			
		40 10 00 KB 00 24 70	— do. —	—do.— 1A	〃	— do. — J.U.C			
		42 00 00 KB 00 07 40	Fuse	250V T2A	ミニチュアヒューズ	Circuit Board, AC G			
※		42 00 00 KB 00 23 50	— do. —	—do.— 12A	〃	— do. — J			
※		42 00 00 KB 00 25 00	— do. —	125V —do.—	〃	— do. — U.C			
		40 10 00 KA 40 08 30	Voltage Selector		電圧切換器				
※		30 12 00 NB 81 68 60	Power Transformer Unit		電源トランスユニット				
※		40 10 00 MG 00 10 30	AC Cord		電源コード	J			
※		40 10 00 MG 00 10 40	— do. —		〃	U			
※		40 10 00 MG 00 10 50	— do. —		〃	G			
※		40 10 00 MG 00 11 20	— do. —		〃	C			
		40 10 00 LB 20 05 70	Fuse Holder Pin		ヒューズホルダーピン	(AC)			
		40 10 00 LB 20 15 30	— do. —		〃	(DC)			
		40 10 00 LB 60 30 00	Connector NH	7P	NHコネクター	Bottom Entry			

※ New Parts (新規部品) (J : Japan, U : US.American, C : Canadian, G : General)

Ref. No.	Part No.	Description	部品名	Remarks	Common Model		
	40 10 00 LB 60 30 10	Connector NH 8P	ＮＨコネクター	Bottom Entry			
	40 10 00 LB 60 30 70	— do. — 10P	〃	— do. —			
	40 10 00 LB 50 03 70	— do. — 5P	〃	— do. —			
	40 10 00 LB 60 31 50	— do. — 10P	〃	— do. —			
	40 10 00 LB 50 02 50	— do. — 5P	〃	Top Entry			
	40 10 00 LB 60 24 60	— do. — 7P	〃	— do. —			
	40 10 00 LB 60 24 90	— do. — 8P	〃	— do. —			
	40 10 00 LB 60 24 70	— do. — 10P	〃	— do. —			
	40 10 00 LB 20 13 90	— do. — 2P	〃	— do. —			
	40 10 00 LB 30 07 30	— do. — 3P	〃	— do. —			
※	40 10 00 LB 60 39 70	Connector 6P	コネクター	5277-06A (DC)			
※	40 10 00 LB 60 39 80	— do. — 7P	〃	5277-07A (DC)			
	40 10 00 LB 20 14 10	Connector NH 2P	ＮＨコネクター	Side Entry			
	40 10 00 LB 40 05 90	— do. — 4P	〃	— do. —			
	40 10 00 LB 60 24 60	Connector Housing 7P	コネクターハウジング	Top Entry (SW)			
	40 10 00 LB 60 24 70	— do. — 10P	〃	— do. —			
	40 10 00 LB 60 24 30	Flat Cable Connector	フラットケーブルコネクタ	Circuit Board PG			

※ New Parts (新規部品)

B. Top Cover & Bottom Frame



	Ref. No.	Part No.	Description	部品名	Remarks	Common Model		
※		30 12 93 00 00 00 10	Case Assembly	ケース Ass'y				
※	1	30 12 00 NA 80 71 80	Circuit Board, KC	KC シート				
※	2	30 12 93 NA 80 72 30	— do. — , PG	PG 〃				

※ New Parts (新規部品)

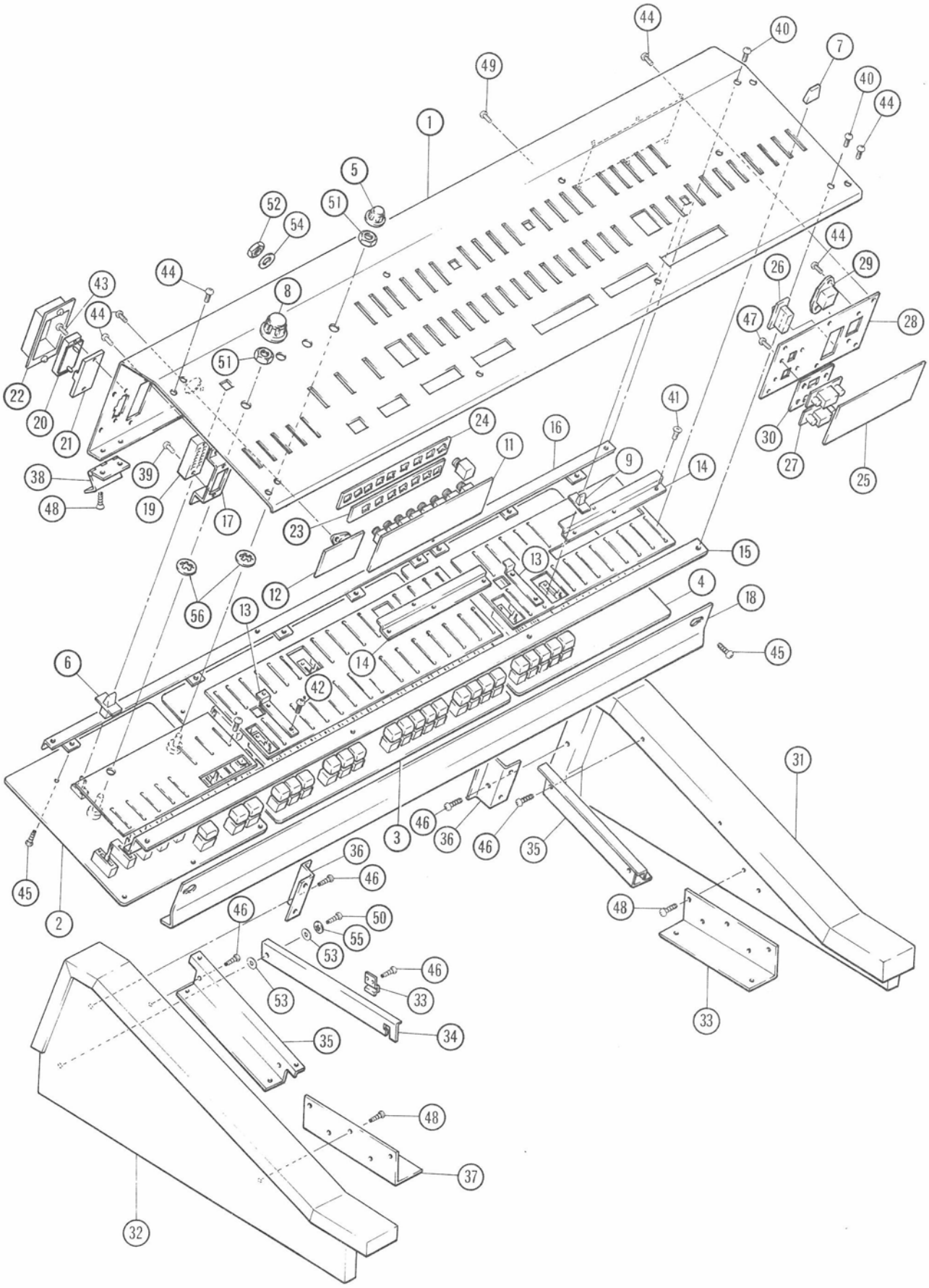
	Ref. No.	Part No.	Description	部品名	Remarks	Common Model		
※	3	30 12 93 NA 80 72 40	Circuit Board, OG1	OG1 シート				
※	4	30 12 93 NA 80 72 50	— do. — , OG2	OG2 〃				
※	5	30 12 91 NA 80 68 60	— do. — , TE	TE 〃		SK 20		
※	6	30 12 92 NA 80 76 30	— do. — , SW	SW 〃		SK 30		
※	7	30 10 00 AA 81 58 10	Keyboard Holder (Right)	鍵盤取付金具(右)				
※	8	30 10 00 AA 81 58 00	— do. — (Left)	〃 (左)				
	9	30 10 00 AA 81 54 30	Flange, Leg	脚フランジ				
	10	30 10 00 AA 01 46 90	Corner Angle	コーナーアングル				
※	11	30 10 00 AA 80 58 10	— do. —	〃				
※	12	30 10 00 AA 81 47 70	Corner Fitting	コーナー金具				
※	13	30 10 00 AA 81 55 00	Angle	シート取付アングル				
※	14	40 10 00 EX 00 00 30	Lock	パッチン錠				
※	15	31 10 00 AA 81 65 10	Hanging Hinge	引掛蝶番				
※	16	40 10 00 CA 80 25 80	Shield Paper	シールド紙		SK 30		
	17	30 10 00 CB 01 03 10	Leg, Plastic	脚				
	18	30 10 00 CB 03 30 70	Stopper	回転止め				
	19	30 56 00 CB 08 70 00	Holder, Circuit Board	シートホルダー				
	20	30 10 00 AA 80 42 70	Nut for Leg	脚用ナット				
※	21	30 10 00 CB 81 78 10	PC Support	PCサポート				
※	22	40 10 00 CB 81 85 80	— do. —	〃				
	23	30 10 00 CB 00 18 10	Bearing	LE軸受け	FC-3A			
	24	30 54 00 NB 80 15 50	Handle Assembly	把手 Ass'y				
	25	30 10 00 AA 80 42 80	Handle Holder	把手取付金具				
※	26	30 10 00 NB 81 67 50	Pedal Stopper Band	ペダル止めバンド				
	27	30 10 00 AA 80 43 20	Holder, Pedal Stopper Band	引掛金具				
※	28	30 10 00 AA 81 54 40	Leg Holder	脚保持金具				
※	29	30 10 00 AA 81 54 60	— do. —	脚受金具				
※	30	30 10 00 AA 81 54 70	Stay Holder	ステイ取付金具				
※	31	30 10 00 BA 80 51 10	Chassis, Power Supply	電源シャーシ				
※	32	30 10 00 NB 81 67 30	Leg Assembly	パイプ脚 Ass'y				
※	32-1	30 10 00 AA 81 54 10	Leg Adjustment	調整ナット				
※	32-2	30 10 00 AA 81 54 20	Leg Glide	調整座				
	32-3	40 10 00 EB 35 02 00	Flat Head Screw M5 x 20	サラ小ネジ	Black			

※ New Parts (新規部品)

	Ref. No.	Part No.	Description	部品名	Remarks	Common Model		
※	33	30 10 00 NB 81 67 40	Stay Assembly	脚ステイ Ass'y				
	34	30 10 00 CB 80 83 30	Knob Screw	ノブネジ		CP-70		
※		30 12 00 NB 81 67 10	Power Supply Unit Assembly	電源 Ass'y	J.U.C			
※		30 12 00 NB 81 68 10	— do. —	〃	G			
※	35	30 12 00 NA 80 73 00	Circuit Board, DC	DC シート	J.U.C			
※		30 12 00 NA 80 73 10	— do. —	〃	G			
※	36	30 10 00 AA 81 63 00	Holder Connector	コネクターホルダー				
		40 10 00 KB 00 07 10	Fuse 250V T500mA	ヒューズ	G			
		40 10 00 KB 00 07 30	— do. — — do. — T1A	〃	— do. —			
※		40 10 00 KB 00 24 40	— do. — — do. — 500mA	〃	J.U.C			
※		40 10 00 KB 00 24 70	— do. — — do. — 1A	〃	— do. —			
		40 10 00 LB 20 15 30	Fuse Holder Pin	ヒューズホルダーピン				
※		40 10 00 LB 60 39 70	Connector, Socket Housing 6P	コネクター				
※		40 10 00 LB 60 39 80	— do. — 7P	〃				
※	37	30 12 00 NB 81 68 60	Power Transformer Unit	電源トランスユニット				
	38	30 54 00 CB 07 28 80	Isolation Bush	絶縁ブッシュ				
	39	40 10 00 iL 00 02 70	Isolation Base	マイカベース				
	40	40 10 00 EB 23 01 20	Flat Head Screw M3 x 12	皿小ネジ	Choromium			
	41	40 10 00 EB 34 01 60	— do. — M4 x 16	〃	Black			
	42	40 10 00 ED 33 00 60	Bind Head Screw M3 x 6	バインド小ネジ	Choromium			
	43	40 20 00 ED 23 01 20	— do. — M3 x 12	〃	— do. —			
	44	40 10 00 ED 23 01 60	-- do. — M3 x 16	〃	— do. —			
	45	40 10 00 ED 34 01 20	— do. — M4 x 12	〃	Black			
	46	40 10 00 ED 35 01 60	— do. — M5 x 16	〃	— do. —			
	47	40 10 00 Ei 33 01 00	Bind Head Tapping Screw 3 x 10	バインドタッピンネジ1種	— do. —			
	48	40 10 00 Ei 34 01 00	— do. — 4 x 10	〃	— do. —			
	49	40 10 00 EU 06 00 20	Wing Screw M6 x 20	蝶ネジ				
	50	40 10 00 EL 02 60 80	— do. — M2.6 x 8	セムス小ネジ	Yellow			
	51	40 10 00 EL 04 01 40	— do. — M4 x 14	〃	— do. —			
	52	40 10 00 EM 23 51 20	Oval Head Tapping Screw 3.5 x12	丸皿タッピンネジ1種	Choromium			
	53	40 10 00 EO 03 01 60	Flat Head Tapping Screw 3 x 16	皿タッピンネジ1種	Black			
	54	40 10 00 EO 23 51 60	— do. — 3.5 x 16	〃	— do. —			
	55	40 10 00 EO 33 52 00	— do. — 3.5 x 20	〃	Choromium			
	56	40 10 00 EO 34 01 60	— do. — 4 x 16	〃	Black			
	57	40 10 00 EV 20 30 40	Flat Washer M4	平座金	— do. —			
	58	40 10 00 EV 10 02 60	Hexagonal Nut M2.6	六角ナット	Yellow			
	59	40 10 00 EV 20 30 50	Flat Washer M5	平座金	Black			
	60	40 10 00 ED 35 03 50	Bind Head Screw M5 x 35	尖先バインド小ネジ	— do. —			
	61	40 10 00 ED 35 09 50	— do. — M5 x 95	〃	— do. —			
	62	40 10 00 EF 20 54 00	Oval Head Screw M5 x 40	丸皿小ネジ	Choromium			

※ New Parts (新規部品) (J : Japan, U : US.American, C : Canadian, G : General)

C. Control Panel



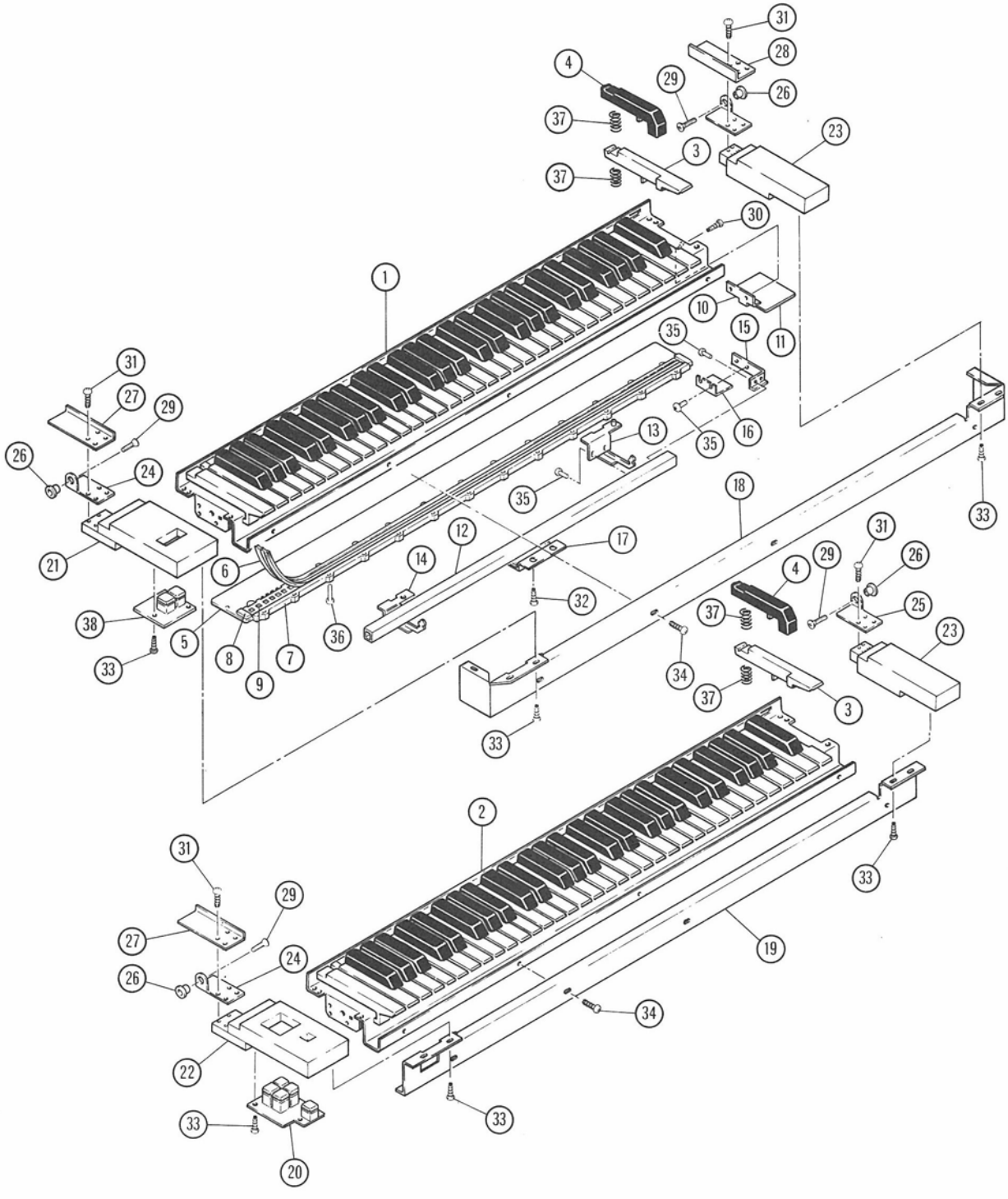
	Ref. No.	Part No.	Description		部品名	Remarks	Common Model		
※	1	30 10 00 AA 81 58 20	Control Panel		コントロールパネル				
	2	30 12 93 NA 80 72 00	Circuit Board, CPA		CPAシート				
	3	30 12 93 NA 80 72 10	– do. – , CPB		CPB 〃				
	4	30 12 93 NA 80 72 20	– do. – , CPC		CPC 〃				
	5	30 56 00 CB 81 21 40	Knob	(Ivory)	ツマミ				
	6	30 10 00 CB 81 46 90	– do. –	(– do. –)	〃				
	7	30 10 00 CB 81 69 60	– do. –	(Yellow)	〃				
		30 10 00 CB 81 69 70	– do. –	(Gray)	〃				
		30 10 00 CB 81 69 80	– do. –	(White)	〃				
※	8	30 10 00 CB 81 78 30	– do. –		〃				
※	9	30 10 00 CB 81 79 00	– do. –		〃				
※	10	40 10 00 CA 80 26 60	Dust-Proof Cloth		防塵クロス				
		40 10 00 CA 80 28 80	– do. –		〃				
		40 10 00 CA 80 28 90	– do. –		〃				
	11	30 12 00 NX 80 00 50	Circuit Board, JK		JKシート				
	12	30 12 00 NX 80 00 60	– do. – , TC		TC 〃				
	13	30 10 00 AA 81 47 90	Braket		取付板				
※	14	30 10 00 AA 81 57 40	Slide VR Angle		補強アングル				
※	15	30 10 00 AA 81 57 80	Circuit Board Angle		シート取付アングル				
※	16	30 10 00 AA 81 57 90	– do. –		〃				
※	17	30 10 00 AA 81 58 30	PK Connector Holder		コネクタ取付金具				
※	18	30 10 00 AA 81 58 60	Panel Holder		パネル受け金具				
	19	30 12 00 MZ 80 88 20	PK Cord Assembly		PK束線Ass'y				
		40 10 00 BB 00 44 30	Contact Pin	2.5P	2.5Pコンタクトピン				
		40 10 00 LB 60 01 30	20P Connector		コネクター 20P				
		40 10 00 LB 60 24 40	Housing	7P	ハウジング 7P				
		40 10 00 LB 60 24 80	– do. –	8P	〃 8P				
	20	30 12 00 MZ 80 88 40	KC Cord Assembly		KC束線Ass'y				
		40 10 00 BB 00 46 90	Contact Pin	2.5P	コネクトピン				
		40 10 00 LB 60 37 60	Housing	7P	ハウジング 7P				
		40 10 00 LB 60 37 70	– do. –	8P	〃 8P				
		40 10 00 LB 60 39 40	Connector Socket	24P	コネクタ 24P				
	21	40 10 00 AA 81 65 00	Bracket		ブラケット				
	22	30 10 00 CB 81 79 10	Cover		カバー				
	23	30 10 00 AA 81 36 10	Spacer Jack		ジャックスペーサー				
※	24	30 10 00 AA 81 57 20	– do. –		〃				
※		30 12 00 NB 81 66 70	AC Panel Assembly		ACパネルAss'y	U.C			
※		30 12 00 NB 81 68 70	– do. –		〃	G			
※		30 12 00 NB 81 68 80	– do. –		〃	J			
※	25	30 12 00 NA 80 73 30	Circuit Board, AC		ACシート	U.C			
※		30 12 00 NA 80 73 40	– do. –		〃	G			

※ New Parts (新規部品) (J : Japan, U : US.American, C : Canadian, G : General)

	Ref. No.	Part No.	Description		部品名	Remarks	Common Model		
※		30 12 00 NA 80 73 50	Circuit Board, AC		ＡＣシート	J			
	26	40 10 00 KA 10 10 60	Power Switch		パワースイッチ				
	27	40 10 00 KA 40 08 30	Voltage Selector		電圧切換器				
※	28	30 10 00 AA 81 55 10	AC Panel		ＡＣパネル	G			
※		30 10 00 AA 81 64 50	— do. —		〃	J.U.C			
	29	40 10 00 LB 20 18 20	AC Inlet		ＡＣインレット	J.U.C			
		40 10 00 LB 20 18 60	— do. —		〃	G			
		40 10 00 MG 00 10 30	AC Cord		電源コード	J			
		40 10 00 MG 00 10 40	— do. —		〃	C			
		40 10 00 MG 00 10 50	— do. —		〃	G			
		40 10 00 MG 00 11 20	— do. —		〃	U			
	30	40 10 00 CB 81 78 90	Spacer		スペーサー				
	31	30 12 93 DA 80 58 00	Side Board, Panel	(Right)	パネル側板（右）				
	32	30 12 93 DA 80 58 10	— do. —	(Left)	〃（左）				
	33	30 54 00 AA 80 25 40	Holder, Stay		ステー押え金具				
	34	30 54 00 AA 80 25 30	Stay	(Left)	ステー（左）				
	35	30 10 00 AA 81 11 50	Panel Bracket	(Large)	パネル取付アングル				
	36	30 10 00 AA 81 11 60	— do. —	(Small)	〃				
	37	30 10 00 AA 81 58 40	— do. —		パネル固定金具				
	38	30 10 00 AA 81 12 40	Hinge		蝶番				
	39	42 00 00 EA 33 00 80	Pan Head Screw	M3 x 8	ナベ小ネジ	Black			
	40	40 10 00 EC 33 00 50	Truss Head Screw	M3 x 5	トラス小ネジ	— do. —			
	41	40 10 00 ED 32 00 40	Bind Head Screw	M2 x 4	バインド小ネジ	— do. —			
	42	40 10 00 ED 32 60 40	— do. —	M2.6 x 4	〃	— do. —			
	43	40 10 00 ED 32 60 80	— do. —	M2.6 x 8	〃	— do. —			
	44	42 00 00 ED 33 00 60	— do. —	M3 x 6	〃	— do. —			
	45	42 00 00 Ei 33 00 60	Bind Tapping Screw	3 x 6	バインドタッピンネジ2種	— do. —			
	46	40 10 00 Ei 03 01 00	— do. —	3 x 10	〃	Yellow			
	47	40 10 00 Ei 33 01 00	— do. —	— do. —	〃	Black			
	48	40 10 00 Ei 04 01 00	— do. —	4 x 10	〃	Yellow			
	49	40 10 00 Ei 34 01 00	— do. —	— do. —	〃	Black			
	50	40 10 00 Ei 34 01 60	— do. —	4 x 16	〃	— do. —			
	51	40 10 00 EZ 30 70 10	Hexagonal Nut	M7	六角ナット	Yellow			
	52	40 10 00 LX 20 00 60	— do. —	M9	〃	Black			
	53	40 10 00 EV 20 00 40	Plain Washer	M4	平座金	Yellow			
	54	40 10 00 LX 20 00 10	— do. —	M9	〃	Black			
	55	40 10 00 EV 41 00 40	Toothed Lock Washer	A4M	歯付座金	Yellow			
	56	40 10 00 EV 41 00 70	— do. —	A7M	〃	— do. —			

※ New Parts (新規部品)　(J : Japan, U : US.American, C : Canadian, G : General)

E. Upper & Lower Keyboard



	Ref. No.	Part No.	Description		部品名	Remarks	Common Model		
※	1	30 10 00 NB 81 72 50	Keyboard Assembly	(U)	鍵盤 Ass'y (UK)				
	2	30 10 00 NB 81 74 30	– do. –	(L)	〃 (LK)				
	3	30 10 00 CB 03 22 10	White Key	C, F	白鍵				
		30 10 00 CB 03 22 20	– do. –	D	〃				

※ New Parts (新規部品)

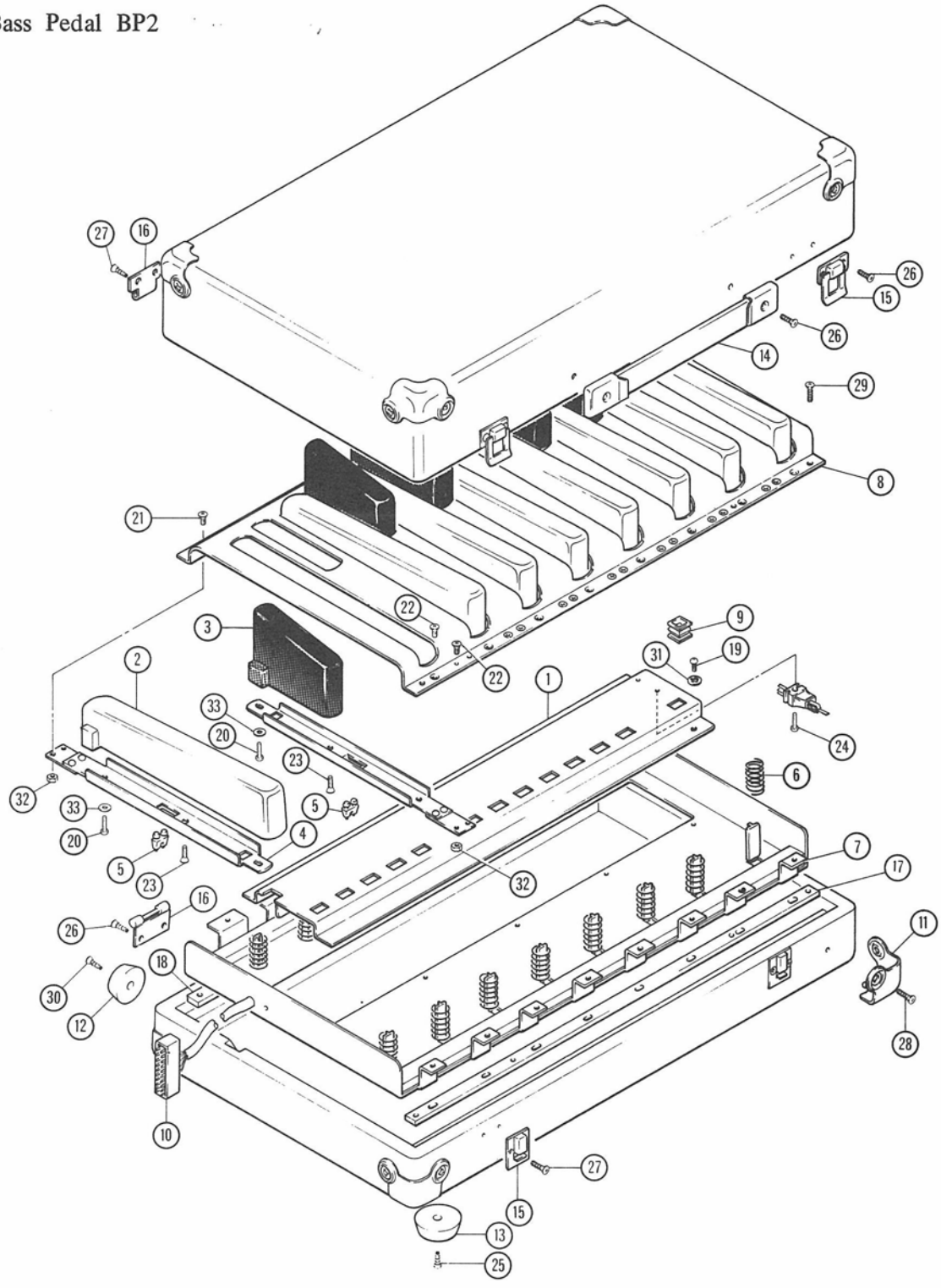
	Ref. No.	Part No.	Description		部品名	Remarks	Common Model		
		30 10 00 CB 03 22 30	White Key	B, E	白鍵				
		30 10 00 CB 03 22 40	— do. —	G	〃				
		30 10 00 CB 03 22 50	— do. —	A	〃				
		30 10 00 CB 03 22 60	— do. —	C#	〃				
※	4	30 10 00 CB 81 83 40	Black Key		黒鍵				
		30 10 00 NB 81 68 20	Switch Unit	(UK)	スイッチユニット				
		30 10 00 NB 81 55 30	— do. —	(LK)	〃				
※	5	30 10 00 NA 80 73 20	Circuit Board, MK	(UK)	MKシート				
		30 10 00 NA 80 65 20	— do. —	(LK)	〃		SK 20		
	6	40 10 00 CB 03 23 30	Rubber Contact		可動導電ゴム				
	7	30 10 00 CB 03 24 00	Holder	12Keys	基板ホルダー(Q)				
		30 10 00 CB 03 24 10	— do. —	13Keys	〃 (K)				
	8	40 10 00 CB 03 35 40	End Plate		エンドプレート				
	9	30 10 00 CB 03 35 70	Isolation Spacer	12Keys	絶縁スペーサー(Q)				
		30 10 00 CB 03 35 80	— do. —	13Keys	〃 (K)				
※	10	30 10 00 AA 81 63 70	Intrapta Angle		インタラプタアングル				
※	11	30 12 00 NA 80 74 30	Circuit Board, PC		PCシート				
※	12	30 10 00 BA 80 51 80	PC Bar		PCバー				
※	13	30 10 00 AA 81 63 30	PC Angle A		PCアングルA				
※	14	30 10 00 AA 81 65 60	— do. — B		〃 B				
※	15	30 10 00 BA 80 52 70	Angle, Reflector		リフレクターアングル				
※	16	30 10 00 BA 80 52 80	PC Reflector		PCリフレクター				
※	17	30 10 00 AA 81 63 80	Stopper, PC Bar		PCバーストッパー				
※	18	30 10 00 AA 81 57 50	Keyboard Spacer	(U)	口金 (U)				
※	19	30 10 00 AA 81 57 60	— do. —	(L)	〃 (L)				
※	20	30 12 00 NX 80 00 70	Circuit Board PN1		PN1シート				
	38	30 12 00 NX 80 00 80	— do. — PN2		PN2 〃				
※	21	30 12 00 DA 80 58 40	Upper Endblock	(Left)	上鍵盤拍子木(左)				
※	22	30 12 00 DA 80 58 30	Lower Endblock	(Left)	下鍵盤拍子木(左)				
※	23	30 12 00 DA 80 58 20	Endblock	(Right)	〃 (右)				
	24	30 10 00 AA 03 28 60	Hinge, MK	(Left)	MK回転金具(左)				
	25	30 10 00 AA 03 28 70	— do. —	(Right)	〃 (右)				
	26	30 10 00 CB 01 18 30	Bush		ブッシュ				
※	27	30 10 00 AA 81 66 20	Spacer	(Left)	回転止め金具(左)				
※	28	30 10 00 AA 81 57 30	— do. —	(Right)	〃 (右)				
		40 10 00 KA 90 17 00	Push Switch With L.E.D.		LED付プッシュスイッチ				
	29	40 10 00 EB 05 01 60	Flat Head Screw	M5 x 16	サラ小ネジ	Yellow			

※ New Parts (新規部品)

Ref. No.	Part No.	Description		部品名	Remarks	Common Model		
30	42 00 00 ED 32 60 60	Bind Head Screw	M2.6 x 6	バインド小ネジ	Black			
31	40 10 00 ED 33 01 60	— do. —	M3 x 16	〃	— do. —			
32	40 10 00 Ei 03 00 60	Bind Head Tapping Screw	3 x 6	バインドタッピンネジ2種	Yellow			
33	40 10 00 Ei 33 01 20	— do. —	3 x 12	〃 1種	Black			
34	40 10 00 Ei 34 01 00	— do. —	4 x 10	〃	— do. —			
35	40 10 00 ED 03 00 80	Bind Head Screw	3 x 8	バインド小ネジ	Yellow			
36	40 10 00 EZ 33 01 40	— do. —	M3 x 14	エバータイトバインドネジ	— do. —			
37	30 10 00 AA 04 37 20	Coil Spring		コイルスプリング				

※ New Parts (新規部品)

D. Bass Pedal BP2



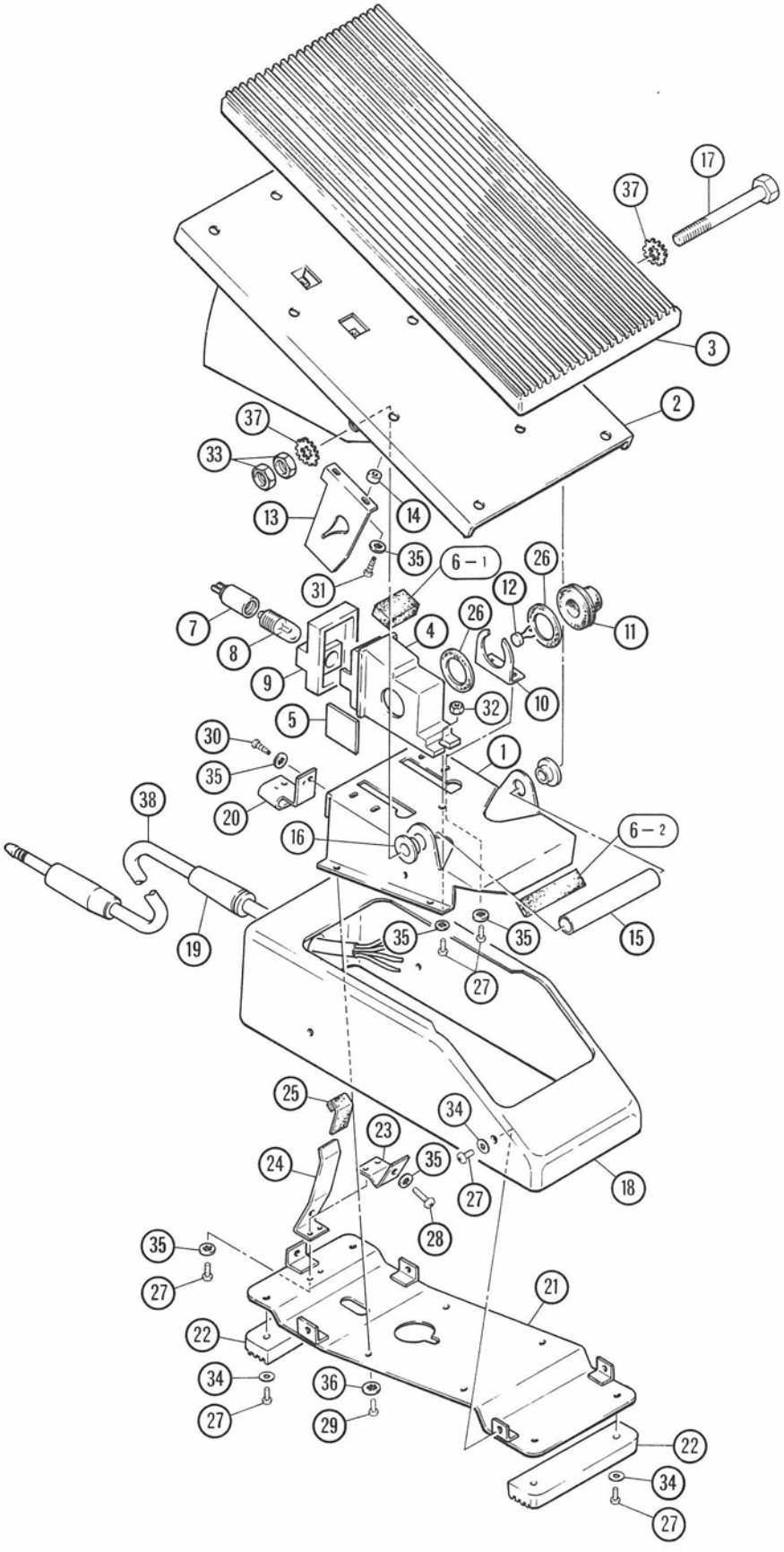
	Ref. No.	Part No.	Description	部品名	Remarks	Common Model		
※		30 12 00 NB 81 68 90	Bass Pedal Assembly	ベースペダルAss'y				
※	1	30 12 00 NB 81 69 00	Switch Base Assembly	スイッチベースAss'y				
		30 10 00 AA 02 31 40	Switch Base	スイッチベース				
		30 10 00 NB 03 70 40	Switch Assembly	スイッチ Ass'y				
※		40 10 00 LC 86 42 00	Printed Circuit Board	プリント基板				

※ New Parts (新規部品)

Ref. No.	Part No.	Description	部品名	Remarks	Common Model
	30 10 00 NB 01 88 20	White Key Assembly	白鍵 Ass'y		
	30 10 00 NB 01 88 30	Black Key Assembly	黒鍵 Ass'y		
2	30 10 00 CB 01 70 70	White Key Head	白鍵ヘッド		
3	30 10 00 CB 01 70 80	Black Key Head	黒鍵ヘッド		
4	30 10 00 AA 02 13 90	Key Arm	キーアーム		
	30 0 00 AA 02 14 00	Key Arm Spring	板バネ		
5	30 10 00 CB 01 69 30	Actuater	アクチェーター		
6	30 10 00 AA 02 14 10	Key Spring	キースプリング		
7	30 10 00 AA 02 14 20	Switch Frame	スイッチフレーム		
※ 8	30 10 00 AA 81 59 10	Key Frame	キーフレーム		
9	30 10 00 CB 01 83 70	Rubber, Dust Cover	防塵ゴム		
	40 10 00 CD 01 02 10	Key Guide Cloth	キーガイドクロス		
	40 10 00 CD 01 02 20	— do. —	〃		
※ 10	30 12 00 MZ 80 89 30	B.P. Cable Assembly	BP線材 Ass'y		
	30 10 00 CB 00 45 30	Cord Bush	コードブッシュ		
	40 10 00 LB 60 01 40	Plug 20P	プラグ 20P		
	40 10 00 LB 00 01 50	Connector Cover	コネクタカバー		
	40 10 00 MD 00 01 00	Cable	ケーブル		
	40 10 00 LB 60 24 40	Connector Housing 2.5P	コネクタハウジング		
	40 10 00 CB 00 07 10	Cord Holder	コード押え		
	30 12 00 00 00 00 01	B.P. Case Assembly	BPケース本体 Ass'y	蓋含む	
	30 12 94 DA 80 59 40	B.P. Case Cover Assembly	BPケース蓋 Ass'y		
11	30 10 00 AA 80 90 50	Corner Fitting	コーナー金具		
12	30 10 00 CB 02 32 00	Slip Fitt	スベリ座		
13	30 54 00 CB 80 12 70	Leg, Rubber	ゴム脚		
14	30 54 00 NB 81 12 70	Handle Assembly	把手 Ass'y		
15	40 10 00 EX 00 00 40	Lock	パッチン錠		
16	40 10 00 EX 00 00 50	Hanging Hinge	引掛蝶番		
17	30 10 00 CB 01 84 00	Cushion	クッション		
18	30 10 00 CB 01 84 10	— do. —	〃		
19	40 10 00 EA 03 00 50	Pan Head Screw M3 x 5	ナベ小ネジ	Yellow	
20	40 10 00 EA 04 02 00	— do. — M4 x 20	〃	— do. —	
21	40 10 00 EB 03 00 50	Flat Head Screw M3 x 5	皿小ネジ	— do. —	
22	40 10 00 EB 03 00 60	— do. — M3 x 6	〃	— do. —	
23	40 10 00 EB 04 02 00	— do. — M4 x 20	〃	— do. —	
24	40 10 00 ED 03 01 20	Bind Head Screw M3 x 12	バインド小ネジ	— do. —	
25	40 10 00 Ei 34 01 20	Bind Head Tapping s 4 x 12	バインドタッピンネジ1種	Black	
26	40 10 00 EM 23 01 00	Oval Head Tapping Screw 3 x 10	丸皿タッピンネジ1種	Choromium	
27	40 10 00 EM 23 51 00	— do. — 3.5 x 10	〃	— do. —	
28	40 10 00 EO 24 02 00	Flat Head Tapping Screw 4 x 20	皿タッピンネジ1種	— do. —	
29	40 10 00 EP 03 11 00	Flat Head Screw 3.1 x 10	サラ木ネジ	Yellow	
30	40 10 00 ER 22 71 30	Oval Head Wood Screw 2.7 x 13	丸皿木ネジ	Choromium	
31	40 10 00 EV 41 00 30	Toothed Lock Washer A3M	歯付座金	Yellow	
32	40 10 00 EV 10 00 30	Hexagonal Nut M3	六角ナット	— do. —	
33	40 10 00 EV 20 00 40	Flat Washer M4	平座金	— do. —	

※ New Parts (新規部品)

F. Foot Controller FC-3A



	Ref. No.	Part No.	Description		部品名	Remarks	Common Model		
※		30 12 00 NB 81 64 90	EXP Pedal Assembly		EXP Ass'y				
※	1	30 10 00 AA 81 53 30	EXP Frame		EXPフレーム				
	2	30 10 00 AA 01 38 00	EXP Pedal Plate		踏板				
	3	30 10 00 CB 00 36 80	EXP Mat		EXPマット				
	4	30 10 00 CB 00 76 20	Lamp Cover		ランプカバー				
	5	40 10 00 CG 00 00 10	Glass		スリガラス				
※	6	30 10 00 CB 81 77 80	Stopper Rubber		ストッパーゴム				
※		30 10 00 CB 81 85 90	– do. –		〃				
	7	30 10 00 CB 00 76 40	Lamp Holder		ランプホルダー				
	8	40 10 00 JB 00 01 70	Lamp	24V 5W	電球				
	9	40 10 00 LB 20 01 20	Bracket		ブラケット				
	10	30 10 00 AA 01 08 00	Holder Plate		ホルダー支持板				
	11	30 10 00 CB 00 76 30	Holder, Photo Cell		フォトセルホルダー				
	12	40 10 00 iK 00 00 30	Photo Cell		フォトセル				
※	13	30 10 00 AA 81 53 40	Shutter Plate		シャッター板				
	14	30 10 00 CB 00 76 50	Spacer		スペーサー				
	15	30 10 00 AA 01 48 00	– do. –		〃				
※	16	30 10 00 CB 00 18 10	Bearing		L E 軸受				
	17	30 10 00 AA 01 08 20	Shaft		シャフト				
※	18	30 10 00 CB 81 86 00	EXP Case		EXPケース				
	19	30 56 00 CB 00 45 30	Cord Bush		コードブッシュ				
※	20	30 10 00 AA 01 37 80	Cord Clamper		コード支え				
※	21	30 10 00 AA 01 37 90	EXP Base		EXPベース				
※	22	30 10 00 CB 03 00 40	Stopper		滑り止めゴム				
※	23	30 10 00 AA 81 53 50	Pedal Spring Angle		バネ押えアングル				
※	24	30 10 00 AA 81 53 60	Pedal Spring		板バネ				
※	25	40 10 00 CA 80 25 90	Pedal Slide Skin		摺動皮革				
	26	30 10 00 CC 02 03 70	Felt	φ25 x φ25 x 2t	フェルト				
	38	40 10 00 Mi 01 35 70	**Cord Assembly**		束線				
※	27	40 10 00 ED 33 01 00	Bind Head Screw	M3 x 10	バインド小ネジ	Black			
	28	42 00 00 ED 03 02 50	– do. –	M3 x 25	〃	Yellow			
	29	40 10 00 ED 34 01 00	– do. –	M4 x 10	〃	Black			
	30	40 10 00 Ei 03 00 80	Bind Head Tapping Screw	3 x 8	バインドタッピンネジ2種	Yellow			
	31	40 10 00 Ei 03 01 00	– do. –	3 x 10	〃 3種	– do. –			
	32	40 10 00 EV 10 00 30	Hexagonal Nut	M3	六角ナット				
	33	40 10 00 EV 10 00 68	– do. –	M6	〃				
※	34	40 10 00 EV 20 30 30	Flat Washer	M3	平座金	Black			
	35	40 10 00 EV 41 00 30	Toothed Lock Washer	A3M	歯付座金	Yellow			
※	36	40 10 00 EV 40 30 40	– do. –	A4M	〃	Black			
	37	40 10 00 EV 43 00 60	– do. –	AB6M	〃	– do. –			

※ New Parts (新規部品)

SK50D SERVICE MANUAL

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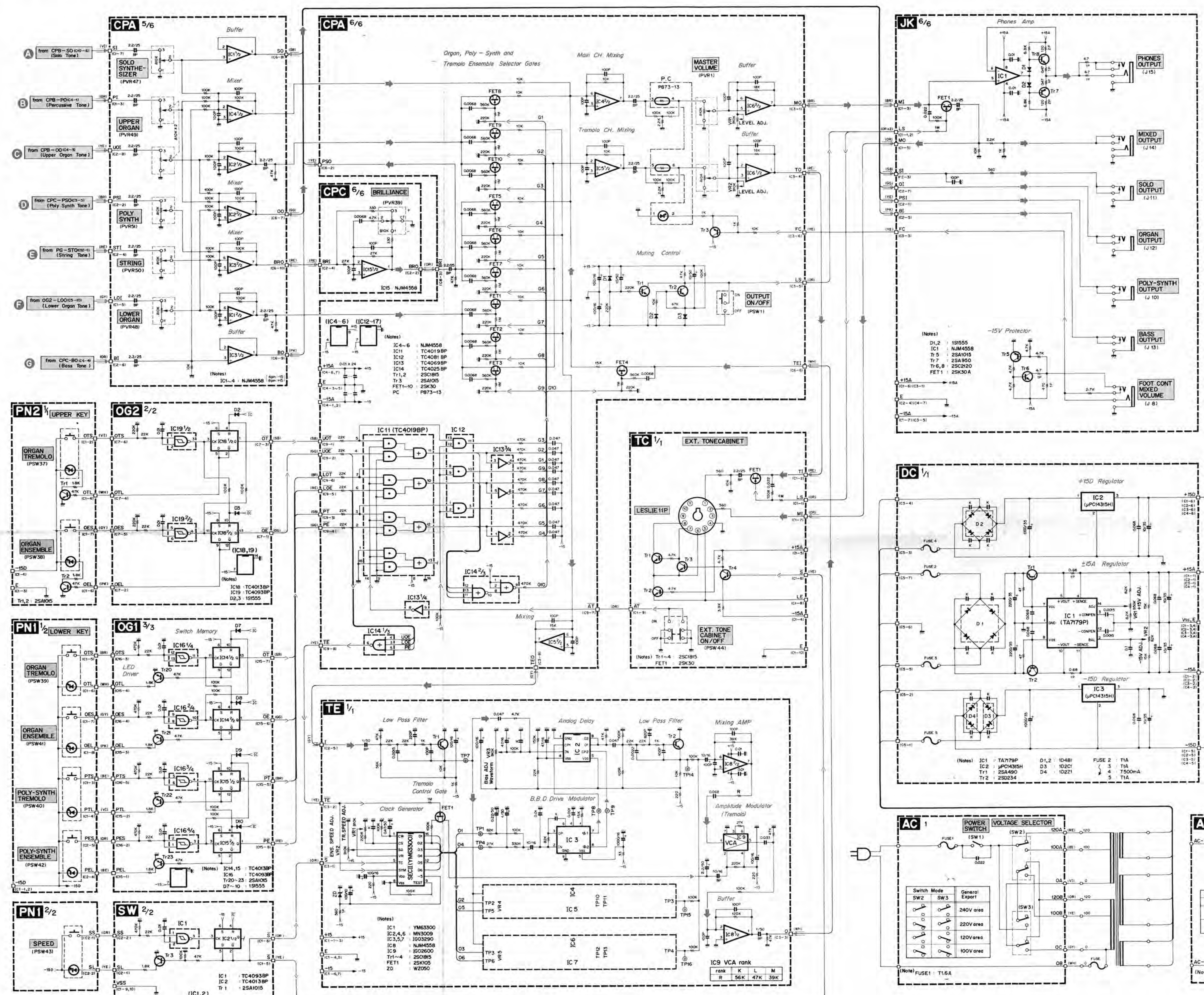
SK50D OVERALL CIRCUIT DIAGRAM 2/2 006886

SK50D OVERALL CIRCUIT DIAGRAM



- Digital Data
- Audio Signal
- Clock Pulse
- Key Code Data
- DC Control
- Low Frequency Modulation Data
- Trigger Pulse

PG

C1

Pin No.	Pin Name	Wire Color	Destination
0	NC	–	–
1	CL	BR	PLO-CL (CN-8)
2	C♯	PK	PLO-C♯ (CN-9)
3	D	SB	PLO-D (CN-10)
4	D♯	GG	PLO-D♯ (CN-11)
5	E	WH	PLO-E (CN-12)
6	F	GY	PLO-F (CN-13)
7	F♯	VI	PLO-F♯ (CN-14)

C4

Pin No.	Pin Name	Wire Color	Destination
1	NC	–	–
2	NC	–	–
3	L	GG	CPA-SL5 (C7-7)
4	U	–	–
5	P	SB	CPA-S8 (C7-5)

C7

Pin No.	Pin Name	Wire Color	Destination
1	-15D	YE	OG1- -15D (C1-5)
2	-15D	–	–
3	+15D	BR	OG1- +15D (C2-3)
4	+15D	–	–
5	Vss	VI	KC-Vss (C4-4)
6	Vss	VI	OG1-Vss (C1-2)
7	Vss	VI	CPC-Vss (C3-1)

C10

Pin No.	Pin Name	Wire Color	Destination
1	E	BL	OG1-E (C8-6)
2	E	–	–
3	E	–	–
4	+15A	BR	OG1- +15A (C8-2)
5	+15A	–	–
6	-15A	–	–
7	-15A	YE	OG1- -15A (C8-4)

C13

Pin No.	Pin Name	Wire Color	Destination
1	4⊿	S PK	CPC-4⊿ (C5-4)
2	8⊓	S SB	CPC-8⊓ (C5-2)
3	16⊓	S WH	CPC-16⊓ (C5-6)
4	16⊿	S GY	CPC-16⊿ (C5-10)
5	8⊿	S GG	CPC-8⊿ (C5-8)

C2

Pin No.	Pin Name	Wire Color	Destination
1	G	BE	PLO-G (CN-15)
2	G♯	GR	PLO-G♯ (CN-16)
3	A	YE	PLO-A (CN-17)
4	A♯	OR	PLO-A♯ (CN-18)
5	B	RE	PLO-B (CN-19)
6	C	BR	PLO-C (CN-20)
7	P1	RE	PLO-P1 (CN-3)

C5

Pin No.	Pin Name	Wire Color	Destination
1	Vss	S YE S	
2	KC4	S YE	OG1-KC4 (C5-9)
3	Vss	S OR S	
4	KC3	S OR	OG1-KC3 (C5-7)
5	Vss	S RE S	
6	KC2	S RE	OG1-KC2 (C5-5)
7	Vss	S BR S	
8	KC1	S BR	OG1-KC1 (C5-3)

C8

Pin No.	Pin Name	Wire Color	Destination
1	Vss	S BE S	
2	SY	S BE	CPB-SY (C1-6)
3	Vss	S BE S	
4	SY	S BE	CPC-SY (C1-6)
5	Vss	S BE S	
6	SY	S BE	OG1-SY (C1-4)
7	Si	S GY	CPC-SOP (C1-4)
8	SP2	–	–
9	SP1	–	–
10	MB	PK	CPA-MB (C7-4)

C11

Pin No.	Pin Name	Wire Color	Destination
1	KVI	GR	JK-KVO (C4-4)
2	SYO	S GY	CPB-I (C7-6)
3	SFC	GR	JK-SFC (C3-4)
4	VIB	BR	CPB-V (C3-4)
5	64'	PK	CPB-64' (C3-5)
6	32'	SB	CPB-32' (C3-6)
7	16'	GG	CPB-16' (C3-7)
8	8'	WH	CPB-8' (C3-8)
9	5 1/3'	GY	CPB-5 1/3' (C3-9)
10	4'	VI	CPB-4' (C3-10)

C3

Pin No.	Pin Name	Wire Color	Destination
1	LTR	GR	CPB-LTR (C6-1)
2	SP	–	–
3	SP	–	–
4	OTR	–	–
5	UL	–	–
6	VTR	GR	CPA-VT (C3-2)
7	PTR	RE	CPC-PTR (C6-4)

C6

Pin No.	Pin Name	Wire Color	Destination
1	Vss	S VI S	
2	φM	S VI	OG1-φM (C12-5)
3	IC	GG	OG1-IC (C12-7)
4	V2	GY	CPA-V2 (C8-6)
5	V1	VI	CPA-V1 (C8-5)

C9

Pin No.	Pin Name	Wire Color	Destination
1	VS	WH	CPA-VS (C8-10)
2	STR	GG	CPB-STR (C11-3)
3	KVO	YE	JK-KVI (C4-3)
4	PV1	OR	CPB-PV1 (C3-2)
5	PV2	GR	CPB-PV2 (C3-1)
6	PS	BE	JK-PS (C4-7)
7	PC	SB	CPC-PC (C3-3)

C12

Pin No.	Pin Name	Wire Color	Destination
1	STO	S RE	CPA-STI (C2-4)
2	E	S RE S	
3	S2	OR	CPB-S2 (C13-2)
4	S3	YE	CPB-S3 (C13-1)
5	S1	RE	CPB-S1 (C13-3)

PLO

C1

Pin No.	Pin Name	Wire Color	Destination
1	–	–	–
2	–	–	–
3	P1	RE	PG-P1 (C2-7)
4	–	–	–
5	–	–	–
6	–	–	–
7	–	–	–
8	CL	BR	PG-CL (C1-1)
9	C♯	PK	PG-C♯ (C1-2)
10	D	SB	PG-D (C1-3)
11	D♯	GG	PG-D♯ (C1-4)
12	E	WH	PG-E (C1-5)
13	F	GY	PG-F (C1-6)
14	F♯	VI	PG-F♯ (C1-7)
15	G	BE	PG-G (C2-1)
16	G♯	GR	PG-G♯ (C2-2)
17	A	YE	PG-A (C2-3)
18	A♯	OR	PG-A♯ (C2-4)
19	B	RE	PG-B (C2-5)
20	C	BR	PG-C (C2-6)

OG1

C1

Pin No.	Pin Name	Wire Color	Destination
1	Vss	VI	DC-Vss (C1-4)
2	Vss	VI	PG-Vss (C7-6)
3	Vss	S BE S	
4	SY	S BE	PG-SY (C8-6)
5	-15D	YE	PG- -15D (C7-1)
6	-15D	YE	KC- -15D (C4-2)
7	-15D	YE	DC- -15D (C1-5)

C4

Pin No.	Pin Name	Wire Color	Destination
1	C♯	WH	OG2-C♯ (C3-1)
2	D	WH	OG2-D (C3-2)
3	D♯	WH	OG2-D♯ (C3-3)
4	E	WH	OG2-E (C3-4)
5	F	WH	OG2-F (C3-5)
6	F♯	WH	OG2-F♯ (C3-6)
7	G	WH	OG2-G (C3-7)
8	G♯	WH	OG2-G♯ (C3-8)
9	A	WH	OG2-A (C3-9)
10	A♯	WH	OG2-A♯ (C3-10)

C7

Pin No.	Pin Name	Wire Color	Destination
1	NC	WH	
2	NC	WH	
3	NC	WH	
4	+15A	WH	OG2- +15A (C4-4)
5	+15A	WH	OG2- +15A (C4-5)
6	-15A	WH	OG2- -15A (C4-6)
7	-15A	WH	OG2- -15A (C4-7)
8	E	WH	OG2-E (C4-8)
9	E	WH	OG2-E (C4-9)
10	E	WH	OG2-E (C4-10)

C10

Pin No.	Pin Name	Wire Color	Destination
1	2 2/3'	S GR	CPB-2 2/3' (C6-6)
2	E	S GR S	
3	4'	S BE	CPB-4' (C6-3)
4	E	S BE S	
5	5 1/3'	S VI	CPB-5 1/3' (C8-5)
6	E	S VI S	
7	8'	S GY	CPB-8' (C8-3)
8	E	S GY S	
9	16'	S WH	CPB-16' (C8-1)
10	E	S WH S	

C13

Pin No.	Pin Name	Wire Color	Destination
1	TR	RE	JK-TRO (C4-2)
2	TR	RE	CPB-TR (C11-6)
3	TR	–	–
4	TS	BE	CPB-TS (C7-2)
5	E	BL	PC-E (C-2)
6	+15A	BR	PC- +15A (C-4)
7	+S	S WH	PC- +S (C-3)
8	E	S WH S	
9	-S	S GG	PC- -S (C-1)
10	E	S GG S	

C2

Pin No.	Pin Name	Wire Color	Destination
1	+15D	BR	DC- +15D (C1-6)
2	+15D	BR	KG- +15D (C4-7)
3	+15D	BR	PG- +15D (C7-3)
4	NC	–	–
5	VM	BE	CPA-VM (C8-4)

C5

Pin No.	Pin Name	Wire Color	Destination
1	Si	S GR	CPB-OSO (C1-4)
2	Vss	S GR S	
3	KC1	S BR	PG-KC1 (C5-8)
4	Vss	S BR S	
5	KC2	S RE	PG-KC2 (C5-6)
6	Vss	S RE S	
7	KC3	S OR	PG-KC3 (C5-4)
8	Vss	S OR S	
9	KC4	S YE	PG-KC4 (C5-2)
10	Vss	S YE S	

C8

Pin No.	Pin Name	Wire Color	Destination
1	+15A	BR	DC- +15A (C1-1)
2	+15A	BR	PG- +15A (C10-4)
3	-15A	YE	DC- -15A (C1-2)
4	-15A	YE	PG- -15A (C10-7)
5	E	–	–
6	E	BL	PG-E (C10-1)
7	E	BL	DC-E (C4-3)

C11

Pin No.	Pin Name	Wire Color	Destination
1	1'	S BR	CPB-1' (C12-7)
2	E	S BR S	
3	1 1/3'	S RE	CPB-1 1/3' (C12-5)
4	E	S RE S	
5	1 3/5'	S OR	CPB-1 3/5' (C6-9)
6	E	S OR S	
7	2'	S YE	CPB-2' (C12-1)
8	E	S YE S	

C15

Pin No.	Pin Name	Wire Color	Destination
1	PEL	BE	PN1-PEL (C2-4)
2	PTL	VI	PN1-PTL (C1-4)
3	OEL	PK	PN1-OEL (C1-8)
4	OTL	WH	PN1-OTL (C1-6)
5	PT	BR	CPA-PT (C9-3)
6	OE	GG	CPA-LOE (C9-5)
7	OT	SB	CPA-LOT (C9-6)
8	PE	RE	CPA-PE (C9-4)

C3

Pin No.	Pin Name	Wire Color	Destination
1	B	WH	OG2-B (C2-1)
2	C	WH	OG2-C (C2-2)
3	CL	WH	OG2-CL (C2-3)
4	IC	WH	OG2-IC (C2-4)
5	φα	WH	OG2-φα (C2-5)
6	φβ	WH	OG2-φβ (C2-6)
7	φM	WH	OG2-φM (C2-7)
8	-15D	WH	OG2- -15D (C2-8)
9	-15D	WH	OG2- -15D (C2-9)
10	SY	WH	OG2-SY (C2-10)

C6

Pin No.	Pin Name	Wire Color	Destination
1	Si	WH	
2	Vss	WH	OG2-Vss (C1-2)
3	KC1	WH	OG2-KC1 (C1-3)
4	Vss	WH	OG2-Vss (C1-4)
5	KC2	WH	OG2-KC2 (C1-5)
6	Vss	WH	OG2-Vss (C1-6)
7	KC3	WH	OG2-KC3 (C1-7)
8	Vss	WH	OG2-Vss (C1-8)
9	KC4	WH	OG2-KC4 (C1-9)
10	Vss	WH	OG2-Vss (C1-10)

C9

Pin No.	Pin Name	Wire Color	Destination
1	UL	–	–
2	Vss	–	–
3	KC4	S YE	KC-KC4 (C5-8)
4	Vss	S YE S	
5	KC3	S OR	KC-KC3 (C5-6)
6	Vss	S OR S	
7	KC2	S RE	KC-KC2 (C5-2)
8	Vss	S RE S	
9	KC1	S BR	KC-KC1 (C5-4)
10	Vss	S BR S	

C12

Pin No.	Pin Name	Wire Color	Destination
1	φM	S VI	CPB-φM (C1-8)
2	Vss	S VI S	
3	φM	S VI	KC-φM (C5-10)
4	Vss	S VI S	
5	φM	S VI	PG-φM (C6-2)
6	Vss	S VI S	
7	IC	GG	PG-IC (C6-3)
8	IC	GG	KC-IC (C4-1)
9	IC	GG	CPC-IC (C3-2)
10	IC	GG	CPA-IC (C7-1)

C16

Pin No.	Pin Name	Wire Color	Destination
1	E	BL	PN2-E (C1-3)
2	PES	OR	PN1-PES (C2-5)
3	OTS	BR	PN1-OTS (C1-5)
4	OES	GY	PN1-OES (C1-7)
5	PTS	BE	PN1-PTS (C1-3)

KC

C1

Pin No.	Pin Name	Wire Color	Destination
1	Vss	S GY S	
2	B3	S GY	KCO-B3 (C2-1)
3	Vss	S GR S	
4	KO	S GR	KCO-KO (C1-5)
5	Vss	S YE S	
6	N4	S YE	KCO-N4 (C1-4)
7	Vss	S RE S	
8	N2	S RE	KCO-N2 (C1-2)
9	Vss	S BE S	
10	B1	S BE	KCO-B1 (C1-6)

C4

Pin No.	Pin Name	Wire Color	Destination
1	IC	GG	OG1-IC (C12-8)
2	-15D	YE	OG1- -15D (C1-6)
3	-15D	–	–
4	Vss	VI	PG-Vss (C7-5)
5	Vss	VI	SW-Vss (C1-10)
6	–	–	–
7	+15D	BR	OG1-+15D (C2-2)

C2

Pin No.	Pin Name	Wire Color	Destination
1	Vss	S PK S	
2	SY	S PK	KCO-SY (C2-5)
3	Vss	S OR S	
4	N3	S OR	KCO-N3 (C1-4)
5	–	–	–
6	Vss	S VI S	
7	B2	S VI	KCO-B2 (C1-7)

C5

Pin No.	Pin Name	Wire Color	Destination
1	Vss	S RE S	
2	KC2	S RE	OG1-KC2 (C9-7)
3	Vss	S BR S	
4	KC1	S BR	OG1-KC1 (C9-9)
5	Vss	S OR S	
6	KC3	S OR	OG1-KC3 (C9-5)
7	Vss	S YE S	
8	KC4	S YE	OG1-KC4 (C9-3)
9	Vss	S VI S	
10	φM	S VI	OG1-φM (C12-3) CPC-φM (C1-2)

C3

Pin No.	Pin Name	Wire Color	Destination
1	Vss	S GG S	
2	K2	S GG	KCO-K2 (C2-3)
3	Vss	S WH S	
4	K1	S WH	KCO-K1 (C2-2)
5	Vss	S BR S	
6	N1	S BR	KCO-N1 (C1-1)
7	Vss	S SB S	
8	CK	S SB	KCO-CK (C2-4)

OG2

C1

Pin No.	Pin Name	Wire Color	Destination
1	NC	WH	
2	Vss	WH	OG1-Vss (C6-2)
3	KC1	WH	OG1-KC1 (C6-3)
4	Vss	WH	OGL-Vss (C6-4)
5	KC2	WH	OG1-KC2 (C6-5)
6	Vss	WH	OG1-Vss (C6-6)
7	KC3	WH	OG1-KC3 (C6-7)
8	Vss	WH	OG1-Vss (C6-8)
9	KC4	WH	OG1-KC4 (C6-9)
10	Vss	WH	OG1-Vss (C6-10)

C4

Pin No.	Pin Name	Wire Color	Destination
1	NC	WH	
2	NC	WH	
3	NC	WH	
4	+15A	WH	OG1-+15A (C7-4)
5	+15A	WH	OG1-+15A (C7-5)
6	-15A	WH	OG1- -15A (C7-6)
7	-15A	WH	OG1- -15A (C7-7)
8	E	WH	OG1-E (C7-8)
9	E	WH	OG1-E (C7-9)
10	E	WH	OG1-E (C7-10)

C7

Pin No.	Pin Name	Wire Color	Destination
1	OE	GG	CPA-UOE (C9-2)
2	OEL	PK	PN2-OEL (C1-6)
3	OT	SB	CPA-UOT (C9-1)
4	OTL	WH	PN2-OTL (C1-4)
5	OES	GY	PN2-OES (C1-7)
6	OTS	VI	PN2-OTS (C1-2)
7	IC	–	–

C2

Pin No.	Pin Name	Wire Color	Destination
1	B	WH	OG1-B (C3-1)
2	C	WH	OG1-C (C3-2)
3	CL	WH	OG1-CL (C3-3)
4	IC	WH	OG1-IC (C3-4)
5	φα	WH	OG1-φα (C3-5)
6	φβ	WH	OG1-φβ (C3-6)
7	φM	WH	OG1-φM (C3-7)
8	-15D	WH	OG1- -15D (C3-8)
9	-15D	WH	OG1- -15D (C3-9)
10	SY	WH	OG1-SY (C3-10)

C5

Pin No.	Pin Name	Wire Color	Destination
1	PS3	OR	CPC-PS3 (C4-1)
2	PS2	RE	CPC-PS2 (C4-2)
3	PS1	BR	CPC-PS1 (C4-3)
4	B16'	S YE	CPC-B16' (C4-6)
5	E	S YE S	
6	B8'	S GR	CPC-B8' (C4-8)
7	E	S GR S	
8	AT8'	S BE	CPC-AT8' (C4-10)
9	E	S BE S	
10	LOO	S GY	CPA-LOI (C1-5)

C3

Pin No.	Pin Name	Wire Color	Destination
1	C♯	WH	OG1-C♯ (C4-1)
2	D	WH	OG1-D (C4-2)
3	D♯	WH	OG1-D♯ (C4-3)
4	E	WH	OG1-E (C3-4)
5	F	WH	OG1-F (C4-5)
6	F♯	WH	OG1-F♯ (C4-6)
7	G	WH	OG1-G (C4-7)
8	G♯	WH	OG1-G♯ (C4-8)
9	A	WH	OG1-A (C4-9)
10	A♯	WH	OG1-A♯ (C4-10)

C6

Pin No.	Pin Name	Wire Color	Destination
1	CL	VI	CPB-CL (C2-2)
2	OC	GY	CPB-OC (C2-3)
3	O1	WH	CPB-O1 (C2-1)
4	1L	GG	CPB-1L (C5-8)
5	O2	SB	CPB-O2 (C5-7)
6	2L	PK	CPB-2L (C5-6)
7	NIC	BR	CPC-NIC (C6-2)

KCO

C1

Pin No.	Pin Name	Wire Color	Destination
1	N1	S BR	KC-N1 (C3-6)
2	N2	S RE	KC-N2 (C1-8)
3	N3	S OR	KC-N3 (C2-4)
4	N4	S YE	KC-N4 (C1-6)
5	KO	S GR	KC-KO (C1-4)
6	B1	S BE	KC-B1 (C1-10)
7	B2	S VI	KC-B2 (C2-7)

C2

Pin No.	Pin Name	Wire Color	Destination
1	B3	S GY	KC-B3 (C1-2)
2	K1	S WH	KC-K1 (C3-4)
3	K2	S GG	KC-K2 (C3-2)
4	CK	S SB	KC-CK (C3-8)
5	SY	S PK	KC-SY (C2-2)
6	–	–	–
7	–	–	–
8	Vss	VI	SW-Vss (C1-9)

TE

C1

Pin No.	Pin Name	Wire Color	Destination
1	+15A	BR	TC- +15A (C1-5)
2	+15A	BR	DC- +15A (C4-1)
3	+15A	–	–
4	E	BL	DC-E (C4-3)
5	E	BL	TE-E (C2-1)
6	-15A	YE	DC- -15A (C4-2)
7	-15A	YE	TC- -15A (C1-4)

C2

Pin No.	Pin Name	Wire Color	Destination
1	E	BL	TE-E (C1-5)
2	E	BL	SE1
3	E	S GY S	
4	I	–	–
5	I	S GY	CPA-TEO (C3-8)

C3

Pin No.	Pin Name	Wire Color	Destination
1	S	OR	SW-S (C1-6)
2	T/E	YE	CPA-T/E (C9-8)
3	O	S WH	CPA-TEI (C6-6)
4	E	S WH S	
5	E	BL	TC-E (C1-10)

PN2

C1

Pin No.	Pin Name	Wire Color	Destination
1	-15A	YE	PN1- -15A (C1-2)
2	OTS	VI	OG2-OTS (C7-6)
3	E	BL	OG1-E (C16-1)
4	OTL	WH	OG2-OTL (C7-4)
5	NC	–	–
6	OEL	PK	OG2-OEL (C7-2)
7	OES	GY	OG2-OES (C7-5)

PN1

C1

Pin No.	Pin Name	Wire Color	Destination
1	-15A	YE	SW- -15D (C1-7)
2	-15A	YE	PN2- -15A (C1-1)
3	PTS	BE	OG1-PTS (C16-5)
4	PTL	VI	OG1-PTL (C15-2)
5	OTS	BR	OG1-OTS (C16-3)
6	OTL	WH	OG1-OTL (C15-4)
7	OES	GY	OG1-OES (C16-4)
8	OEL	PK	OG1-OEL (C15-3)

C2

Pin No.	Pin Name	Wire Color	Destination
1	SS	GR	SW-SS (C2-2)
2	SL	YE	SW-SL (C2-1)
3	NC	–	–
4	PEL	BE	OG1-PEL (C15-1)
5	PES	OR	OG1-PES (C16-2)

CPA

C1

Pin No.	Pin Name	Wire Color	Destination
1	E	BL	JK-E (C1-8)
2	E	S GR S	
3	PI	S GR	CPB-PO (C4-1)
4	E	S GY S	
5	LOI	S GY	OG2-LOO (C5-10)
6	E	S VI S	
7	SI	S VI	CPB-SO (C10-6)

C4

Pin No.	Pin Name	Wire Color	Destination
1	-15A	YE	DC- -15A (C2-2)
2	-15A	YE	CPB- -15A (C9-7)
3	E	BL	DC-E (C2-3)
4	E	BL	CPB-E (C9-3)
5	E	BL	TC-LE (C1-8)
6	+15A	BR	DC- +15A (C2-1)
7	+15A	BR	CPB- +15A (C9-1)

C8

Pin No.	Pin Name	Wire Color	Destination
1	Vss	VI	DC-E (C3-3)
2	Vss	–	–
3	VT	GR	PG-VTR (C3-6)
4	VM	BE	OGI-VM (C2-5)
5	V1	VI	PG-V1 (C6-5)
6	V2	GY	PG-V2 (C6-4)
7	Vss	–	–
8	Vss	–	–
9	Vss	–	–
10	VS	WH	PG-VS (C9-1)

C2

Pin No.	Pin Name	Wire Color	Destination
1	E	S BR S	
2	PSI	S BR	CPC-PSO (C3-5)
3	E	S RE S	
4	STI	S RE	PG-STO (C12-1)
5	E	S OR S	
6	BI	S OR	CPC-BO (C4-4)
7	E	S YE S	
8	UOI	S YE	CPB-OO (C4-3)

C6

Pin No.	Pin Name	Wire Color	Destination
1	E	–	–
2	PSO	S YE	JK-PSI (C2-1)
3	BRI	S OR	CPC-BRO (C2-2)
4	E	S OR S	
5	E	S WH S	
6	TEI	S WH	TE-O (C3-3)
7	OO	S GG	JK-OI (C2-7)
8	SO	S SB	JK-SI (C2-3)
9	BO	S PK	JK-BI (C2-5)
10	BRO	S RE	CPC-BRI (C2-4)

C9

Pin No.	Pin Name	Wire Color	Destination
1	UOT	SB	OG2-OT (C7-3)
2	UOE	GG	OG2-OE (C7-1)
3	PT	BR	OG1-PT (C15-5)
4	PE	RE	OG1-PE (C15-8)
5	LOE	GG	OG1-OE (C15-6)
6	LOT	SB	OG1-OT (C15-7)
7	AT	OR	TC-AT (C1-9)
8	T/E	YE	TE-T/E (C3-2)

C3

Pin No.	Pin Name	Wire Color	Destination
1	MO	S BR	JK-MI (C1-3)
2	E	S BR S	
3	E	S RE S	
4	TO	S RE	TC-TI (C1-2)
5	LS	OR	JK-LS (C1-1)
6	FC	YE	JK-FC (C3-3)
7	E	S GY S	
8	TEO	S GY	TE-I (C2-5)

C7

Pin No.	Pin Name	Wire Color	Destination
1	IC	GG	OG1-IC (C12-10)
2	IC	GG	CPB-IC (C1-1)
3	IC	GG	CPC-IC (C2-1)
4	MB	PK	PG-MB (C8-10)
5	SB	SB	PG-P (C4-5)
6	NC	–	–
7	SL5	GG	PG-L (C4-3)

CPB

C1

Pin No.	Pin Name	Wire Color	Destination
1	IC	GG	CPA-IC (C7-2)
2	-15D	YE	DC- -15D (C2-5)
3	FS	OR	JK-FS (C4-8)
4	OSO	S GR	OG1-Si (C5-1)
5	Vss	S GR S	
6	SY	S BE	PG-SY (C8-2)
7	Vss	S BE S	
8	φM	S VI	OG1-φM (C12-1)
9	Vss	S VI S	
10	Vss	VI	DC-Vss (C2-4)

C4

Pin No.	Pin Name	Wire Color	Destination
1	PO	S GR	CPA-PI (C1-3)
2	NC		
3	OO	S YE	CPA-UOI (C2-8)
4	NC		
5	EC	BL	CPB-EC (C11-2)

C7

Pin No.	Pin Name	Wire Color	Destination
1	TBC	GG	CPB-TBC (C2-5)
2	TS	BE	OG1-TS (C13-4)
3	TMC	SB	CPB-TMC (C2-4)
4	TVC	PK	CPB-TVC (C2-6)
5	NC	–	–
6	I	S GY	PG-SYO (C11-2)
7	E	S GY S	

C10

Pin No.	Pin Name	Wire Color	Destination
1	TR	RE	CPB-TR (C11-6)
2	+15A	BR	CPB- +15A (C9-2)
3	+15A	BR	CPC- +15A (C6-5)
4	-15A	YE	CPB- -15A (C9-8)
5	-15A	YE	CPC- -15A (C6-9)
6	SO	VI	CPA-SI (C1-7)
7	E	BL	CPB-E (C9-4)
8	E	BL	CPC-E (C6-7)
9	E	–	–
10	KV	GR	JK-KVO (C4-5)

C13

Pin No.	Pin Name	Wire Color	Destination
1	S3	YE	PG-S3 (C12-4)
2	S2	OR	PG-S2 (C12-3)
3	S1	RE	PG-S1 (C12-5)
4	NIC	–	–
5	NIC	BR	CPC-NIC (C6-1)

C2

Pin No.	Pin Name	Wire Color	Destination
1	O1	WH	OG2-O1 (C6-3)
2	CL	VI	OG2-CL (C6-1)
3	OC	GY	OG2-OC (C6-2)
4	TMC	SB	CPB-TMC (C7-3)
5	TBC	GG	CPB-TBC (C7-1)
6	TVC	PK	CPB-TVC (C7-4)
7	TVC	–	–
8	Vss	VI	CPC-Vss (C1-7)

C5

Pin No.	Pin Name	Wire Color	Destination
1	SP2	–	–
2	SPC	–	–
3	SP	–	–
4	SP1	–	–
5	SBC	–	–
6	2L	PK	OG2-2L (C6-6)
7	O2	SB	OG2-O2 (C6-5)
8	1L	GG	OG2-1L (C6-4)

C8

Pin No.	Pin Name	Wire Color	Destination
1	16'	S WH	OG1-16' (C10-9)
2	E	S WH S	
3	8'	S GY	OG1-8' (C10-7)
4	E	S GY S	
5	5 1/3'	S VI	OG1-5 1/3' (C10-5)
6	E	S VI S	
7	4'	S BE	CPB-4' (C6-2)
8	E	S BE S	
9	2 2/3'	S GR	CPB-2 2/3' (C6-5)
10	E	S GR S	

C11

Pin No.	Pin Name	Wire Color	Destination
1	EC	BL	DC-Vss (C4-4)
2	EC	BL	CPB-EC (C4-5)
3	STR	GG	PG-STR (C9-2)
4	TRO	OR	JK-TRI (C4-1)
5	TR	RE	OG1-TR (C13-2)
6	TR	RE	CPB-TR (C10-1)
7	TR	RE	CPB-TR (C3-3)

C14

Pin No.	Pin Name	Wire Color	Destination
1	DES	BR	SW-PES (C2-4)
2	SUS	RE	SW-SUS (C2-7)
3	DEL	OR	SW-PEL (C2-3)
4	-15D	YE	SW- -15D (C1-8)
5	SUL	GR	SW-SUL (C2-5)
6	DEC	BE	SW-PER (C1-4)
7	SU	VI	SW-SU (C1-3)
8	IC	GY	SW-IC (C1-1)

C3

Pin No.	Pin Name	Wire Color	Destination
1	PV2	GR	PG-PV2 (C9-5)
2	PV1	OR	PG-PV1 (C9-4)
3	TR	RE	CPB-TR (C11-7)
4	V	BR	PG-VIB (C11-4)
5	64'	PK	PG-64' (C11-5)
6	32'	SB	PG-32' (C11-6)
7	16'	GG	PG-16' (C11-7)
8	8'	WH	PG-8' (C11-8)
9	5 1/3'	GY	PG-5 1/3' (C11-9)
10	4'	VI	PG-4' (C11-10)

C6

Pin No.	Pin Name	Wire Color	Destination
1	LTR	GR	PG-LTR (C3-1)
2	4'	S BE	CPB-4' (C8-7)
3	4'	S BE	OG1-4' (C10-3)
4	E	S BE S	
5	2 2/3'	S GR	CPB-2 2/3' (C8-9)
6	2 2/3'	S GR	OG1-2 2/3' (C10-1)
7	E	S GR S	
8	1 3/5'	S OR	CPB-1 3/5' (C12-3)
9	1 3/5'	S OR	OG1-1 3/5' (C11-5)
10	E	S OR S	

C9

Pin No.	Pin Name	Wire Color	Destination
1	+15A	BR	CPA- +15A (C4-7)
2	+15A	BR	CPB- +15A (C10-2)
3	E	BL	CPA-E (C4-4)
4	E	BL	CPB-E (C10-7)
5	E	–	–
6	NC	–	–
7	-15A	YE	CPA- -15A (C4-2)
8	-15A	YE	CPB- -15A (C10-4)

C12

Pin No.	Pin Name	Wire Color	Destination
1	2'	S YE	OG1-2' (C11-7)
2	E'	S YE S	
3	1 3/5'	S OR	CPB-1 3/5' (C6-8)
4	E	S OR S	
5	1 1/3'	S RE	OG1-1 1/3' (C11-3)
6	E	S RE S	
7	1'	S BR	OG1-1' (C11-1)
8	E	S BR S	

CPC

C1

Pin No.	Pin Name	Wire Color	Destination
1	Vss	S VI S	
2	φM	S VI	KC-φM (C5-10)
3	Vss	S GY S	
4	SOP	S GY	PG-Si (C8-7)
5	Vss	S BE S	
6	SY	S BE	PG-SY (C8-4)
7	Vss	VI	CPB-Vss (C2-8)
8	Vss	VI	DC-Vss (C3-4)
9	-15D	YE	DC- -15D (C3-5)
10	FS	OR	JK-FS (C4-9)

C4

Pin No.	Pin Name	Wire Color	Destination
1	PS3	OR	OG2-PS3 (C5-1)
2	PS2	RE	OG2-PS2 (C5-2)
3	PS1	BR	OG2-PS1 (C5-3)
4	BO	S OR	CPA-BI (C2-6)
5	E	S YE S	
6	B16'	S YE	OG2-B16' (C5-4)
7	E	S GR S	
8	B8'	S GR	OG2-B8' (C5-6)
9	E	S BE S	
10	AT8	S BE	OG2-AT8 (C5-8)

C2

Pin No.	Pin Name	Wire Color	Destination
1	IC	GG	CPA-IC (C7-3)
2	BRO	S OR	CPA-BRI (C6-3)
3	E	S OR S	
4	BRI	S RE	CPA-BRO (C6-10)
5	E	S RE S	

C5

Pin No.	Pin Name	Wire Color	Destination
1	E	S SB S	
2	8⊓	S SB	PG-8⊓ (C13-2)
3	E	S PK S	
4	4⊿	S PK	PG-4⊿ (C13-1)
5	E	S WH S	
6	16⊓	S WH	PG-16⊓ (C13-3)
7	E	S GG S	
8	8⊿	S GG	PG-8⊿ (C13-5)
9	E	S GY S	
10	16⊿	S GY	PG-16⊿ (C13-4)

C3

Pin No.	Pin Name	Wire Color	Destination
1	Vss	VI	PG-Vss (C7-7)
2	IC	GG	OG1-IC (C12-9)
3	PC	SB	PG-PC (C9-7)
4	E	S BR S	
5	PSO	S BR	CPA-PSI (C2-2)

C6

Pin No.	Pin Name	Wire Color	Destination
1	NIC	BR	CPB-NIC (C13-5)
2	NIC	BR	OG2-NIC (C6-7)
3	EBR	OR	JK-EBR (C3-2)
4	PTR	RE	PG-PTR (C3-7)
5	+15A	BR	CPB- +15A (C10-3)
6	+15A	BR	JK- +15A (C3-1)
7	E	BL	CPB-E (C10-8)
8	E	BL	JK-E (C4-10)
9	-15A	YE	CPB- -15A (C10-5)
10	-15A	YE	JK- -15A (C3-5)

PC

C1

Pin No.	Pin Name	Wire Color	Destination
1	-S	S GG	OG1- -S (C13-9)
2	E	BL	OG1-E (C13-5)
3	+S	S WH	OG1-+S (C13-7)
4	+15A	BR	OG1-+15A (C13-6)

SW

C1

Pin No.	Pin Name	Wire Color	Destination
1	IC	GY	CPB-IC (C14-8)
2	IC	–	–
3	SU	VI	CPB-SU (C14-7)
4	PER	BE	CPB-DEC (C14-6)
5	S	YE	TC-S (C1-6)
6	S	OR	TE-S (C3-1)
7	-15D	YE	PN1- -15D (C1-1)
8	-15D	YE	CPB- -15D (C14-4)
9	Vss	VI	KCO-Vss (C2-8)
10	Vss	VI	KC-Vss (C4-5)

C2

Pin No.	Pin Name	Wire Color	Destination
1	SL	YE	PN1-SL (C2-2)
2	SS	GR	PN1-SS (C2-1)
3	PEL	OR	CPB-DEL (C14-3)
4	PES	BR	CPB-DES (C14-1)
5	SUL	GR	CPB-SUL (C14-5)
6	SUS	–	–
7	SUS	RE	CPB-SUS (C14-2)

JK

C1

Pin No.	Pin Name	Wire Color	Destination
1	LS	OR	CPA-LS (C3-5)
2	LS	OR	TC-LS (C1-1)
3	MI	S BR	CPA-MO (C3-1)
4	E	S OR S	
5	MO	S OR	TC-MI (C1-7)
6	+15A	BR	DC-+15A (C3-1)
7	-15A	YE	DC- -15A (C3-2)
8	E	BL	CPA-E (C1-1)

C4

Pin No.	Pin Name	Wire Color	Destination
1	TRI	OR	CPB-TRO (C11-4)
2	TRO	RE	OG1-TR (C13-1)
3	KVI	YE	PG-KVO (C9-3)
4	KVO	GR	PG-KVI (C11-1)
5	KVO	GR	CPB-KV (C10-10)
6	E	–	–
7	PS	BE	PG-PS (C9-6)
8	FS	OR	CPB-FS (C1-3)
9	FS	OR	CPC-FS (C1-10)
10	E	BL	CPC-E (C6-8)

C2

Pin No.	Pin Name	Wire Color	Destination
1	PSI	S YE	CPA-PSO (C6-2)
2	E	S YE S	
3	SI	S SB	CPA-SO (C6-8)
4	E	S SB S	
5	BI	S PK	CPA-BO (C6-9)
6	E	S PK S	
7	OI	S GG	CPA-OO (C6-7)
8	E	S GG S	

C3

Pin No.	Pin Name	Wire Color	Destination
1	+15A	BR	CPC-+15A (C6-6)
2	EBR	OR	CPC-EBR (C6-3)
3	FC	YE	CPA-FC (C3-6)
4	SFC	GR	PG-SFC (C11-3)
5	-15A	YE	CPC- -15A (C6-10)

TC

C1

Pin No.	Pin Name	Wire Color	Destination
1	LS	OR	JK-LS (C1-2)
2	TI	S RE	CPA-TO (C3-4)
3	E	S RE S	
4	-15A	YE	TE- -15A (C1-7)
5	+15A	BR	TE-+15A (C1-1)
6	S	YE	SW-S (C1-5)
7	MI	S OR	JK-MO (C1-5)
8	LE	BL	CPA-E (C4-5)
9	AT	OR	CPA-AT (C9-7)
10	E	BL	TE-E (C3-5)

DC

C1

Pin No.	Pin Name	Wire Color	Destination
1	+15A	BR	OG1- +15A (C8-1)
2	-15A	YE	OG1- -15A (C8-3)
3	E	BL	OG1-E (C8-7)
4	Vss	VI	OG1-Vss (C1-1)
5	-15D	YE	OG1- -15D (C1-7)
6	+15D	BR	OG1- +15D (C2-1)

C4

Pin No.	Pin Name	Wire Color	Destination
1	+15A	BR	TE- +15A (C1-2)
2	-15A	YE	TE- -15A (C1-6)
3	E	BL	TE-E (C1-4)
4	Vss	BL	CPB-EC (C11-1)
5	-15D	–	–
6	+15D	–	–

C2

Pin No.	Pin Name	Wire Color	Destination
1	+15A	BR	CPA- +15A (C4-6)
2	-15A	YE	CPA- -15A (C4-1)
3	E	BL	CPA-E (C4-3)
4	Vss	VI	CPB-Vss (C1-10)
5	-15D	YE	CPB- -15D (C1-2)
6	+15D	–	–

C3

Pin No.	Pin Name	Wire Color	Destination
1	+15A	BR	JK- +15A (C1-6)
2	-15A	YE	JK- -15A (C1-7)
3	E	VI	CPA-Vss (C8-1)
4	Vss	VI	CPC-Vss (C1-8)
5	-15D	YE	CPC- -15D (C1-9)
6	+15D	–	–

SK50D OVERALL CIRCUIT DIAGRAM

SK50D BLOCK DIAGRAM 006886

SK50D BLOCK DIAGRAM

KEY CODE SECTION

SOLO SYNTHSIZER SECTION

TREMOLO/ENSEMBLE OUTPUT SECTION

POLY-SYNTH VIBRATO/PITCH SECTION

MASTER OSC SECTION

UPPER ORGAN SECTION

POLY-SYNTH SECTION

TRIGGER DETECTOR SECTION

LOWER ORGAN and BASS SECTION

POWER SUPPLY SECTION

Digital Data
Audio Signal
Clock Pulse
Key Code Data
DC Control
Low Frequency Modulation Data
Trigger Pulse

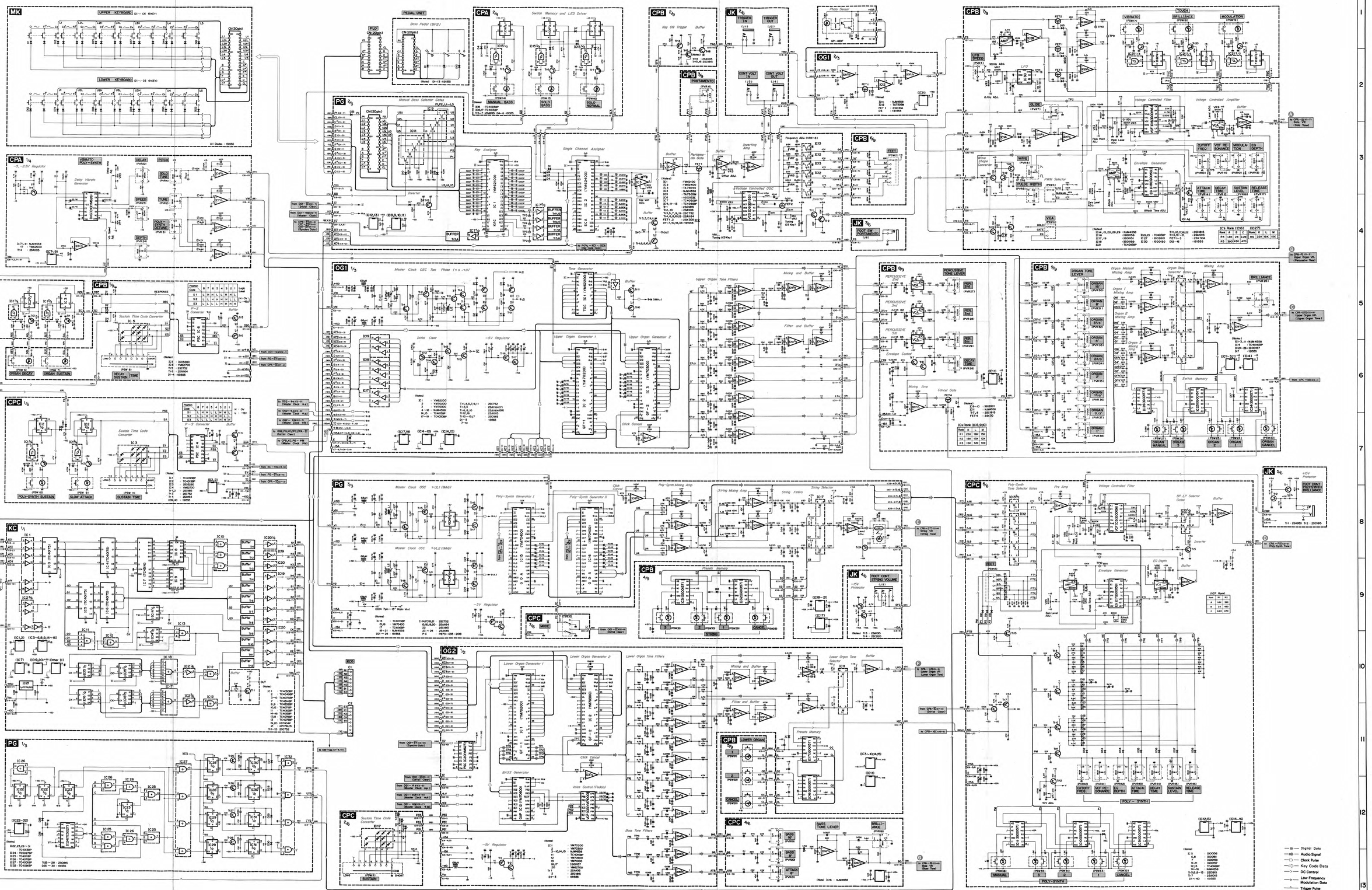
Digital Data
Audio Signal
Clock Pulse
Key Code Data
DC Control
Low Frequency Modulation Data
Trigger Pulse

SK50D BLOCK DIAGRAM

SK50D BLOCK DIAGRAM

SK50D OVERALL CIRCUIT DIAGRAM ½ 006886

SK50D OVERALL CIRCUIT DIAGRAM



NOTES:
1. All Resistors are 1/4 watt unless otherwise specified.
2. All Capacitors are in microfarads unless otherwise specified.
3. All Keyswitches, Tabswitches and Pushbutton Switches shown in "off" position.
4. Capacitors
   - △ mark : Tantalum Capacitor
   - ○ mark : Polystyrene Capacitor
   - K mark : Ceramic Capacitor 1000pF
5. ABBREVIATIONS OF WIRE COLOR IN ELECTONE

BL	BLACK	RE	RED
YE	YELLOW	BE	BLUE
GY	GRAY	GG	GRASS GREEN
PK	PINK	OR	ORANGE
BR	BROWN	VI	VIOLET
GR	GREEN	SB	SKY BLUE
WH	WHITE	TP	TIN PLATED WIRE
TR	TRANSPARENT		
SOR	Shielding orange wire		
SGRS	Earthing conductor of shielding green wire		

SK50D OVERALL CIRCUIT DIAGRAM